

**THE
HANDYMAN'S
ENCYCLOPEDIA**

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**A MANUAL
OF HOME DECORATION AND REPAIRS**

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INTRODUCTION

Today more people than ever before are doing their own repairs and decorating, finding in it a way of improving their homes at low cost while at the same time enjoying the sense of satisfaction such work can bring.

This situation owes much to the developments that have taken place in tools and equipment, materials and methods of working. In the past it took years to learn a craft or trade; now it is possible for the untrained man or woman to undertake any number of jobs in and around the house. Most manufacturers make a feature of catering for those who do their own repairs and decorating and years of research have gone into developing products that can be used effectively by those with little or no previous experience. It was not long ago that the mixing and application of paint was regarded as a job for the expert; today paint is sold ready for use and can be applied simply by following the instructions on the tin.

The Handyman's Encyclopedia explains, with the help of diagrams, how to tackle a wide variety of jobs. The first half deals chiefly with the house itself; it covers such things as maintenance and repairs to the structure, exterior and interior decorating, and also includes a section on outbuildings, fences, gates and paths, as well as one on legal problems and house purchase. While the first half of the book shows how to make the house itself more comfortable, the second shows how its contents can be made, repaired and maintained; it gives directions on such things as making curtains, loose covers, rugs, carpets and lampshades, as well as on upholstering and upholstery repairs.

There are of course many different types of handyman and handywoman jobs. Some of those described can be tackled confidently by the beginner; others need a little practice before undertaking them. Others again call for specialised knowledge, and, where this is the case, it is mentioned in the text. The book is divided into sections, each of which starts with a comprehensive list of the subjects to be covered in the section.

The aim throughout has been to supply the information needed to carry out a wide range of jobs efficiently and at minimum cost. Not that this information will in itself ensure a satisfactory result. Success in this as in other fields depends largely on the amount of perseverance and commonsense one is prepared to bring to the job. None the less this encyclopedia should prove an invaluable guide to all who wish to take up, or have already done so, the fascinating hobby of home decoration.

HOME MAINTENANCE

Necessity of maintaining a house in good repair—value of methodical annual inspection—knowing what to look for.

ANNUAL INSPECTION. *Inspection of the Interior: Sequence—the roof-space—damaged tiles and slates—wet and dry rot—woodworm—the water storage tank—enclosure box, cover and lagging—insulated floor coverings—cistern valve and main tap—roof trap—metal fittings—cracks in ceilings and walls—electrical fittings—wallpaper—woodwork—fireplaces—switches and plugs—skirtings—dry rot—floor-boards—staircases—water supply and fittings—windows and sash-cords—cupboard-space—hot-water system—fuel storage—cellar. Inspection of the Exterior: Roof covering—flashings—chimney-stacks, guttering and down-pipes—eaves and fascia—windows and frames—doors and doorways—porch—brickwork—damp-course—outbuildings. Points for consideration when inspecting property before house-purchase—frequency of maintenance.*

PERIODICAL INSPECTION. *Sequence—stains on walls and ceilings—loose fireplaces—electrical fittings—loose tiles—water appliances—doors and windows—pointing—gates and fence-posts—drains—floor coverings—stairs—tap-washers.*

THE comfort of a home, and its economical and easy management, depends a great deal on the sensible care devoted to its maintenance. A house that is neglected and falls into disrepair is a cheerless place in which to live; not only does it cost more to clean and run, but an unkempt house may endanger the health of its occupants. A badly seated light switch or plug, a piece of worn electrical flex can be dangerous; a cracked window-pane or draughty doorway causes colds and chills; a chipped sink or a gap round the draining-board harbours dirt and germs, and it is often found that people who are in a constant state of poor health live in houses that are run down. The cost and trouble of keeping a house in good order is very small in relation to the return, for the expenditure in tools and materials, the time spent in doing odd jobs, is an investment. This is especially true if the occupant is the owner of the property, but it is of equal importance to the tenant of rented property. A dingy dwelling overshadows the outlook of those who live in it; a bright, cheerful home leads to contentment and cheerful living.

It is not merely sufficient to renew a tap-washer occasionally, oil hinges when they squeak, or cover the walls with new paper in the Spring. To keep a house in good order requires a methodical checkover at regular intervals; a house should be thoroughly inspected from top to bottom—inside and outside—once a year, and any necessary repairs noted and dealt with in their order of priority. This annual checkover should supplement brief inspections carried out at shorter periods, say every three months, to check on small things that can go wrong—the kitchen drawer that won't slide easily, the sash-cord that frays to danger point, complaining locks and hinges, loosening stair-runners, etc.

It is one thing to carry out inspections at regular intervals, but it is quite another thing to know what to look for, and to be able to differentiate between a serious structural fault requiring urgent attention and a simple repair job that can be done at any convenient time. The first section is devoted to the inspection of houses, what to look for and how to recognize faults; later sections deal with tools and equipment to carry out home-handyman jobs, and how to deal with repairs simply and easily.

ANNUAL INSPECTION

The following information on the inspection of interiors and exteriors of dwelling-houses is also applicable to the inspection of houses before occupation or purchase.

Inspection of the Interior: Start at the top of the house (see *Fig. 1*, Descriptive terms of parts of interiors) and work down. It is of the utmost importance to obtain access to the roof-space—that is the space between the ceilings of the uppermost rooms and the actual roof covering. Most houses are fitted with ceiling traps for inspection of water cisterns which are usually located in the roof-space. Take a torch with you, but switch it off for your first look. Any tell-tale chinks of light through slates or tiles indicate the possibility of future roof repairs, but if these are not extensive they are not of major importance. If more than small chinks of light filter through the inside of the roof some immediate action is necessary to deal with missing or broken slates or tiles; wood-work and other surfaces under damaged places should be thoroughly inspected for signs of wet or dry rot. If there are signs of wet or dry rot in the timbers this could be very serious and lead to expensive treatment. However, dry rot is most often encountered under floorboards, seldom in roofs. This condition will be dealt with more fully later.

The timbers should also be carefully inspected for woodworm—a condition that is likely to occur in rafters—the roof timbers on which the roof covering is laid—and the joists, the thick timbers that support the ceilings of rooms on top floors. Woodworm is indicated by groups of numerous small holes about the size made with the point of a small bradawl. Another sign of woodworm is fine powdery sawdust, on the affected timbers or surfaces below them. If woodworm in a roof is extensive it will necessitate urgent action to check it and strengthen the infected timbers.

If the timbers look sound and feel solid when rapped, continue your inspection with the water storage tank. This should be free from rust on the exterior and interior; in a well-kept house the cistern will be topped with a wooden cover and enclosed in a box packed with material to insulate the tank in very cold weather. The pipes leading to and away from the tank should be wrapped with lagging. Absence of lagging or box should be dealt with before hard weather sets in; lack of a cover should be dealt with quickly to prevent dust settling on the water in the tank.

Take a look at the covering of the loft floor. It may be partly boarded or completely open, being just joists across the floor space with some boards round the tank. Absence of flooring is not necessarily a bad thing, but its presence does add value to the property, and a loft makes a good place for a workshop. If the floor has been lagged—that is, covered with insulating material in the form of corklike granules between the joists, or sheets of glass wool covering the floor—this is a sign that the house has been well cared for. Floors so lagged conserve heat in winter and make the house cooler in summer. Before leaving the roof, work the cistern ball up and down with hand pressure; if the valve is working properly water will gush into the tank when the ball is depressed—if the valve is faulty the inflow of water will be a slow trickle. See that the stop-cock—a tap in the main pipe from the water tank—works easily with hand pressure. When you leave the roof-space check that the trap fits closely to seal off the loft.

While you are checking the inside of the house, pay particular attention to the small items which give some indication of the quality of the builder's work—plumbing fixtures, door-handles, locks and catches, etc. If these have been skimped, the builder may have cut down in other ways not so easily visible.

As you enter each room, start at the top and work down. Look at ceilings first; wide cracks above windows and doors may indicate weak framing. Small cracks in a ceiling are nothing much to worry about; they are usually the result of the expansion and contraction that all buildings are subject to. Large cracks and bulges should be viewed with suspicion. Press gently against such flaws; if there is a clear movement the plaster may have separated from the laths which may mean a complete plastering job. Electrical fittings affixed to ceilings should be firm and never loose. Watch for cracks in walls; these can mean little or much; small cracks are not serious, but large ones that can be traced, running through to adjoining rooms on either side or above and below, may be due to subsidence, in which case the crack will also be visible on the outside walls. Take a good look at the wallpaper; old wallpaper can easily be replaced, but it may tell you something more than just old age. If the paper is blistered or peeling or has patches ringed by stains the chances are that damp is penetrating the structure, especially on outside walls and chimney-breasts.

Scan the woodwork of doors and windows, see that doors and windows are not warped and that they open and close easily and do not have to be pulled or pushed to fit into their frames. Locks and catches should work efficiently and be free from rust.

Inspect the fireplace: the surround should be firmly fixed to the wall, and there should be no cracks or gaps round the edges; there should be no loose or cracked tiles; the firebrick at the back of the fireplace should not be cracked. The grate should be in reasonable condition; the best fires are those fitted with an ash-pan.

Check light switches and plugs to see that they are firmly secured to walls and skirtings. Take a very careful look at the skirting; there should be no large gaps

between the bottom edge of the skirting and the floor-boards—this is not serious but it is something that should be put right. Rap the skirting with your knuckles; it should sound firm and solid. If the boards sound dull and feel soft you can

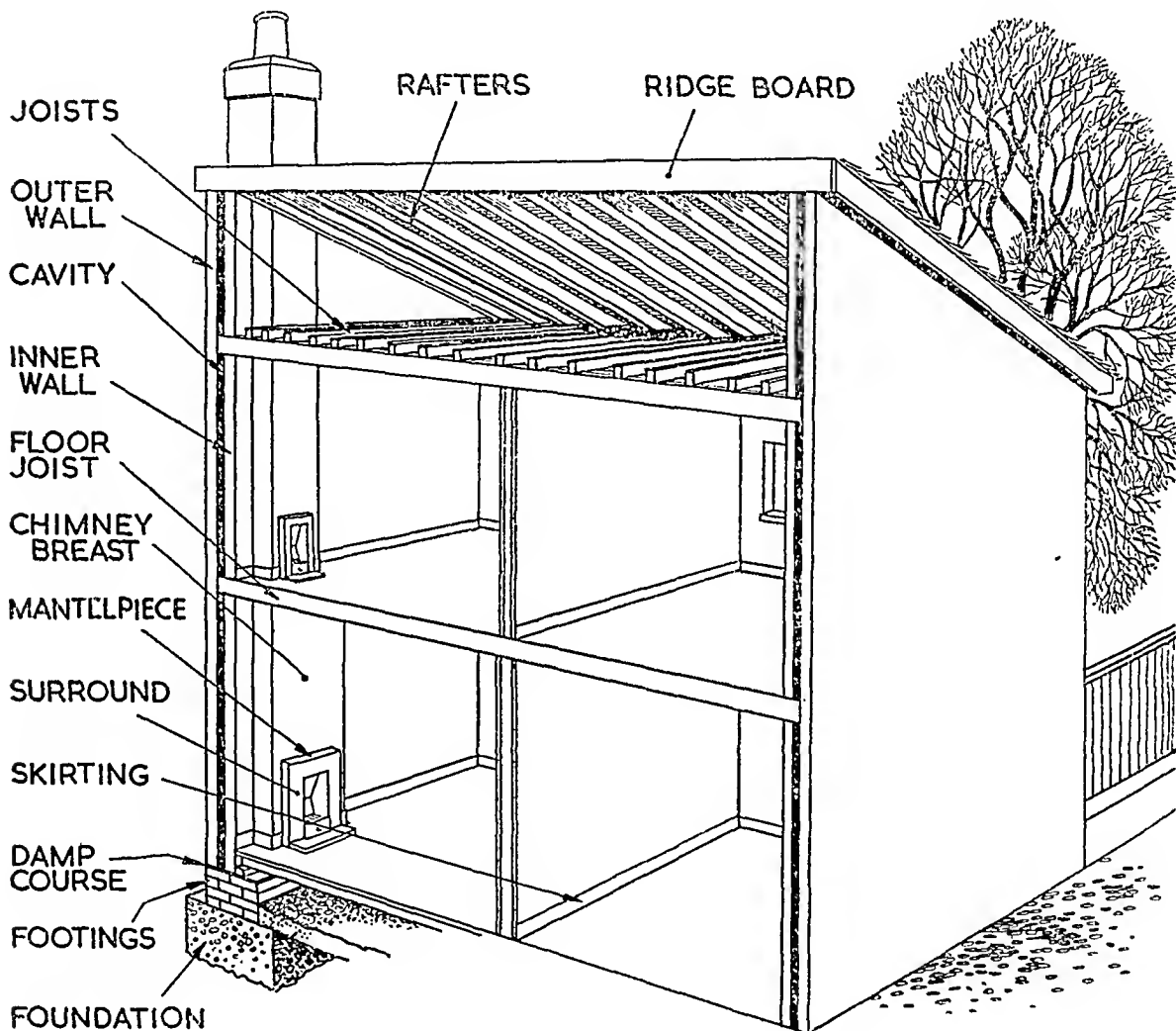


Fig. 1. Descriptive terms of parts of interiors

suspect dry rot. This shows on skirtings and floor-boards in the form of a series of square cracks set closely together. If there is any sign of dry rot, you should have the floor-boards lifted. Dry rot is recognized by its fruit, visible on the underside of the skirting, floor-boards, or joists, in the form of fluffy masses of white fungus which resemble cotton-wool. The masses may be tinged with bright yellow and mauve patches, and stringy strands of spreading fungus trail from the fungus

patches. The fruit bodies of dry rot resemble toadstool heads covered with spots of rust-red powder. It is a disease, a contagious disease which can spread very quickly. If the area affected is quite small it is not too difficult a job to put right, but this should be dealt with immediately. Dealing with dry rot is explained on page 97.

Give the floor-boards a careful scrutiny. Small spaces between the boards are nothing to worry about, but there should be no large gaps or cracks, depressions or bulges. Make a point of walking all over the floor, which should not squeak or give unevenly in any place. The boards should not be too badly worn or scarred.

Examine the staircase, passages and landings. Are the stairs badly worn, is the handrail secure and really strong enough for its purpose, and are the stairs safe for children?

Other things you should ask yourself about and check are the fittings and services. Are the water taps in reasonably good condition, or will they need replacing? Is it possible to get a bucket under the taps in the sink? Are the water pipes rusted? Are sinks, lavatory pans, baths and wash-basins cracked or chipped, or are they badly stained? And are these fittings secure in their mountings? Is the electrical installation adequate for your requirements or is it supplemented by the addition of trailing lengths of flex?

Go round and turn all the taps on, flush the lavatory pans, check the flooring around wash-basins and sinks for wet and dry rot. Push open and close every window. Broken sash-cords are nothing to worry about, they are easily replaced, but windows that need force to open or close them are in bad order. You should be able to open or close a window sash with the pressure of one finger.

Assess the amount of cupboard room in the house. Is there sufficient, or are there suitable recesses into which cupboards can conveniently be built? Check larders and pantries for accessibility and condition of repair.

Make a thorough inspection of the hot-water system and the method of heating water. Does it require a roaring fire on a summer day? Is the hot-water tank lagged? Is the boiler in good condition? Does it require any special fuel? Is the coal bunker or coal house awkward to get at on a cold wet day? And can fuel be easily deposited and extracted from the storage accommodation?

Look at the condition of such things as geysers and cooking stoves and don't forget to check the cellar—if there is one. A good cellar should be dry and ventilated. The timber should be sound, the floor should be of stone or concrete and it should be adequately fitted with interior lighting, or permit good access of daylight.

Inspection of the Exterior: Start at the top and work down. Get as close a look at the roof as possible, especially if inspection of the inside has shown that the roof may be faulty. If a ladder is not available a pair of field-glasses will be found extremely useful for inspecting out-of-reach surfaces. Look for displaced or missing tiles or slates. Examine the lead flashings inserted in the bottom courses of

the chimney-stacks (see *Fig. 2* which illustrates all the technical terms used in this description of exterior inspection). Examine the gulleys where sloping surfaces of roof meet for signs of wear and tear. Give the gutter a thorough check for cracked sections and watch for tell-tale patches of rusty stain on woodwork below the gutters which indicate cracks or broken joints. Chimneys should rise at least two feet above the highest point of the roof, or you may be bothered with smoky fires. Test the pointing (the face of the layer of mortar between the brick courses) to see that it is firm. Loose pointing may permit the entry of water; crumbling mortar may indicate that the chimney needs completely rebuilding.

After the gutters, inspect the eaves and fascia (*Fig. 2*). Follow the down-pipes from eaves to foundations; the fixtures should be firmly seated and the pipes uncracked and free from rust.

Check the outsides of the windows (the upstairs ones may have to be inspected from inside the house). Try sticking the point of a penknife-blade into the woodwork; if the blade slides in easily the wood is probably rotten or rotting. If the blade meets with firm resistance the woodwork is sound. Check specially at corners and places where water runs off the wood. The panes should be uncracked and the putty should be firm. Dry crumbling putty may have to be replaced, but more important, water may have seeped through the old putty into the framing. Metal windows should be free from deep rust pits, and catches and hinges should meet freely. Check that meeting edges of windows and frames do actually meet and close snugly. Inspect the window flashings (see *Fig. 2*) which are thin strips of metal inserted in the brickwork over tops of windows—nearly always over down-stair windows, not necessarily over upper windows that may be protected by eaves.

Have a good look at the doors and doorways. Do they swing freely and close properly, or are there gaps through which draughts can enter? Are the doorsteps worn or slippery? If there is a porch over the doorway, make certain it is firmly seated and in good condition.

Inspect the brickwork. Are the bricks flaking or crumbling? Is the mortar between bricks firm or soft? Is the mortar round windows in good condition; is the mortar round doorways firm? Or are there gaps where mortar has crumbled? Make a special point of inspecting visible signs of the dampcourse (see *Fig. 2*). Has the efficiency of the damp-course been short-circuited by a path, coal-bunker, or outhouse built against the wall of the house? Are the gratings that permit air to circulate freely under the floor of the house clear and unblocked by rock gardens or rubbish? Inspect the drains and covers and make certain that metal covers are not cracked. Inspect outbuildings with the same thoroughness as the main structure, inspect paths, fences and boundary walls for damage and dilapidation.

The state of the decoration is not the most important thing to consider when inspecting a house with a view to purchasing it, unless decoration has been so neglected that the fabric of the walls has been damaged or the fabric of the walls has been damaged or the woodwork has suffered through it. The most important

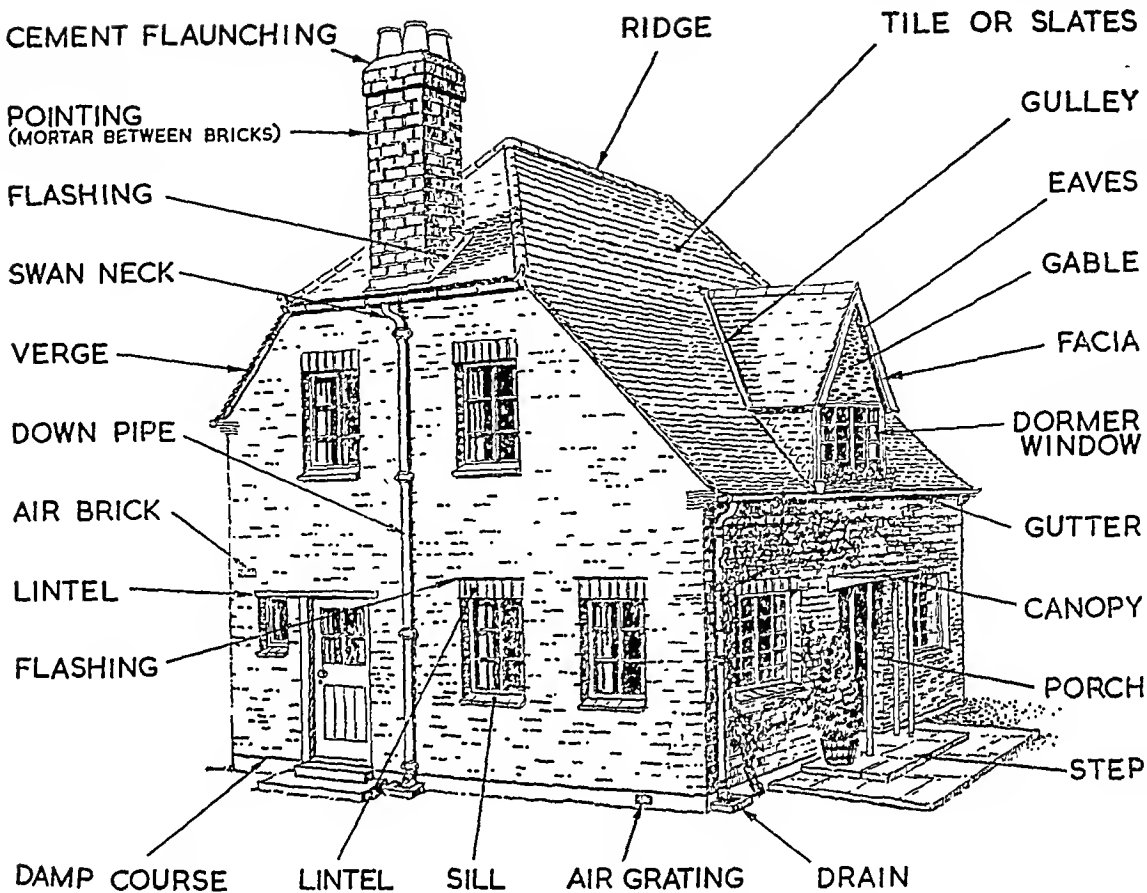


Fig. 2. Descriptive terms of parts of exteriors

thing is the structural condition; redecoration can be done in your own time and the need for it need not upset the purchase provided some adjustment is made in the offered price to meet the cost of redecorating. Structural deficiencies need putting right at once before any further damage is incurred and the cost of immediate structural repairs can be quite heavy; again, this need not necessitate a decision not to purchase, (a) if the repairs are done by the seller or (b) if a very reasonable adjustment, to cover cost of repairs and any inconvenience during repair, is made in the purchase price offer.

If the house is not in tip-top condition, will it be easy to put it in good order, and will it be easy and economical to maintain in good order? If the structure is sound it should not be necessary to effect any major repairs for an initial period of, say, seven or even ten years, provided any small defects are put right at the

outset. The main item of maintenance is decorating, and the would-be purchaser should consider this fully when comparing different properties for possible purchase. To keep property in good condition the exterior woodwork should be cleaned down and repainted once every three years, but if the property is near the sea it may be necessary to redecorate the outside every two years.

The probable cost of interior decorations depends largely on the use that the house is put to, the number of persons occupying and using it, and the size of the decorating areas. With reasonable usage, and providing the initial interior decoration is done properly, a house occupied by an adult family should need redecorating only once in every four or five years, and the cost can be staggered by redecorating the rooms in rotation so that the charge does not have to be met all at one time. Where there are young children and perhaps pets, the main rooms of the house which are mostly used will need redecorating every two years, and even the rooms used least will probably need redecorating about every three years.

PERIODICAL INSPECTION

To keep a house in good repair is sound common sense; not only does it make the place more comfortable to live in, but it saves being faced with large bills for essential repairs after a storm, or period of bad weather, and keeps the value of the self-owned house high.

Make an inspection of the house at regular periods and it will only be necessary to deal with occasional minor repairs. Regular redecorating to protect the surfaces of brick, metal and wood is necessary to prevent damage from rust and rot, which, if neglected, may require large and expensive repairs.

Start your inspection at the top of the house; trace stains on walls and ceilings to their source. Hunt out the cause of draughts which may be the result of badly fitting doors and windows, cracked glass, damaged floor-boards or gaps between skirting and floor-boards. Inspect all plaster work, especially round mantelpieces; if there are smoky stains around mantelpieces and fires it may mean that the mantelpiece or surround is loose, or that there is a crack in the chimney-breast.

Go thoroughly through each room of the house; check electric light and power fittings, and renew worn cords and flex wherever necessary. If you are in any doubt at all about the safety of electrical appliances or wiring get the local Electricity Board to check the installation. Make a note of any missing, loose or cracked tiles in kitchens or bathrooms; a loose tile can easily be refixed but if left too long may get broken or lost. Check water pipes, tanks and cisterns for signs of leaks or rust. Clean and oil door hinges, locks and other metal fittings. Open and close all the doors and windows in the house to see if any want easing. Doors and windows that jam may do so because of thick layers of paint on meeting surfaces. Make a special point of inspecting sash-cords and renew any that have become frayed.

Inspect the roof for damaged slates or tiles, ensure that all gutterings and down-pipes are free from rubbish or birds' nests. Examine exterior woodwork for flaking or thinning paint and see that putty round window-panes is complete. Check the pointing between the brickwork for looseness and crumbling that necessitates repointing. Examine gates, posts and fences for signs of rot near the ground and make sure outside hinges and latches are in good working order. See that drain gratings are clean and undamaged, and that air bricks have not become damaged or clogged with soil, or overgrown with plants.

Finally make a list of the repairs needed, so that none will be overlooked, and always make a point of attending to repairs before commencing any redecorating. It is wise also to have all chimneys swept at the time of inspection, and to look at some of the house fittings. Inspect all curtain rails; these sometimes get rusty and don't run smoothly—a little olive oil will prevent this. Examine lino for small holes and worn parts; these are easily repaired while small, but if left may necessitate laying new lino. If new carpets are contemplated, check doors for clearance. You won't want to start taking down a newly painted door. At the same time watch for signs of wear in carpets; it is often possible to turn them so as to obtain the heavy tread in another place. If stairs are carpeted watch rods or clips, to make sure they are working properly. Check all taps to see if new washers are required, and check stocks of electric lamp bulbs and fuse wire.

WORKBENCH AND BASIC TOOL OUTFIT

jars are cut with a coping saw or pad-saw; both are tools which can be turned as they are worked. The outline of the jar base should be pencilled on the wood, a small starting hole drilled and the waste piece cleanly sawn away.

The base of the cupboard should rest on two battens of 2-in. by 1-in. prepared pine, screwed to the underside of the base as shown in *Fig. 7*. The battens should be positioned with about 3 in. clearance between the outside edge of each batten and the side of the cupboard. If the cupboard is more than 3 ft. long it will be

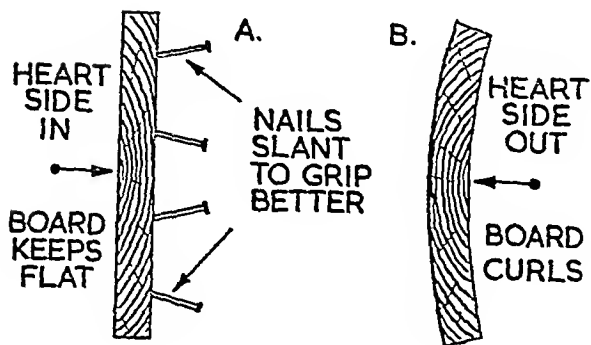


Fig. 5.

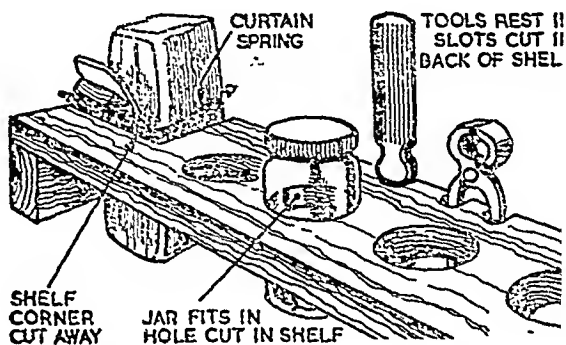


Fig. 6.

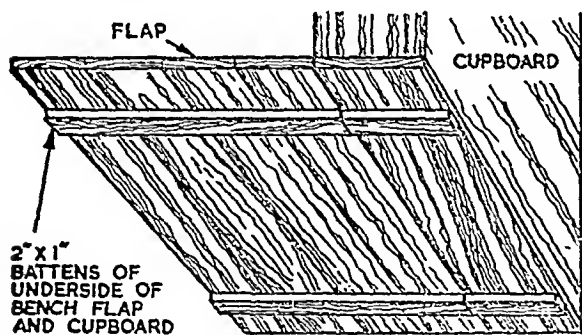


Fig. 7.

FLAP IS HINGED TO BASE OF CUPBOARD WITH "BACK-FLAP" HINGES

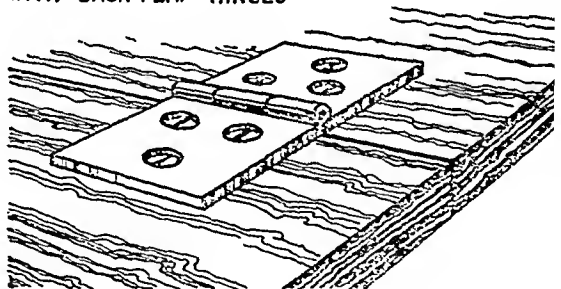


Fig. 8.

advisable to screw an extra batten between the two shown. It will be seen from the illustration that the battens are in line with similar battens placed under the fold-down front of the workbench. The planks of the workbench are placed across the battens, at right angles to them, with the heart side of the planks down on the battens. The parts are secured with 1½-in. screws driven through the battens into the undersides of the planks. The bench flap is hinged to the bottom member of the cupboard, using back-flap hinges (*Fig. 8*) set in about 3 in. from the sides. If the bench is more than 3 ft. wide it will be advisable to place a third hinge in the centre of flap and cupboard base.

It would be difficult but not impossible to fix a bench vice to the front of the flap. But a simple form of vice may be added to the working surface of the bench; *Fig. 9* shows how to rig up wedges to grip wood. The wedge-vice consists of two substantial wedges screwed to the bench-top. These are supplemented by two loose wedges, the wood is placed between the fixed wedges and the two loose wedges are placed in position as shown—the greater the pressure of the wood into the fixed wedges the more securely it is held.

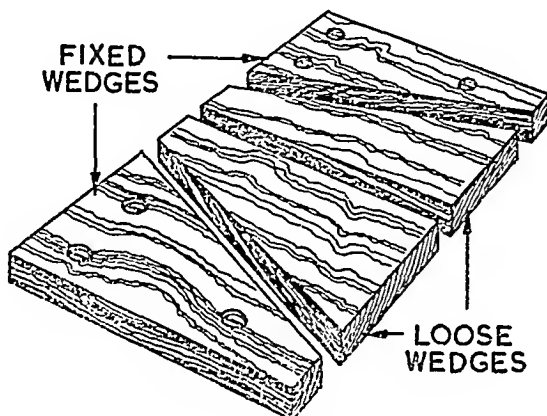


Fig. 9.

A catch should be fitted to the edge of the bench to close the cupboard when it is folded. The top of the cupboard should be fitted with a carrying handle, and the wood can be stained to finish the job. The working surface of the bench should not be stained.

A Bench for the Workshop: Although some very good work can be turned out on the folding bench previously described, the handyman with accommodation will find a full-size workbench invaluable in tackling a variety of jobs. The bench described below is intended primarily for woodwork, but it may be used for other types of work. The chief requirement of a workbench is that it should be light enough for easy handling in the workshop.

Details of construction are illustrated in *Fig. 11*. Pine is a suitable timber for the wooden parts of the bench. A description of the construction is given below; the use of tools in making the bench, and formation of the joints used, are described in later sections. The bench consists of a top, front and back mounted on sturdy legs which are assembled to form frames. The dimensions of the workbench may be varied to suit the individual and according to the space available. A sensible height is 30 in. but this may be adjusted to the height of the worker; the width of the bench shown is 21 in.; this also may be adjusted to suit the space available, but should not be much less than 18 in. The length of the bench can

also be tailored to fit the available space—4 ft. would be a reasonable length; should not be less than 3 ft. and if over 6 ft. an extra set of legs should be provided in the middle.

Timber of substantial thickness should be used for making the legs and 4-in. by 2-in. prepared pine would be suitable. The leg timber is squared off and cut into four lengths of 2 ft. $4\frac{1}{2}$ in. each. The two rails across each set of legs are 3-in. by 2-in. prepared pine; four rails are required for the two sets of legs, each rail squared and cut to a length of 18 in. The rail/leg joint illustrated in *Fig. 13* is a simple mortise and tenon joint; the mortise is the rectangular aperture cut through the legs, the tenon is the protruding tongue cut at the ends of the rail. The mortises and tenons are cut for the two parts to fit snugly together when the leg frames are assembled. The tenons are secured in the mortises with lengths

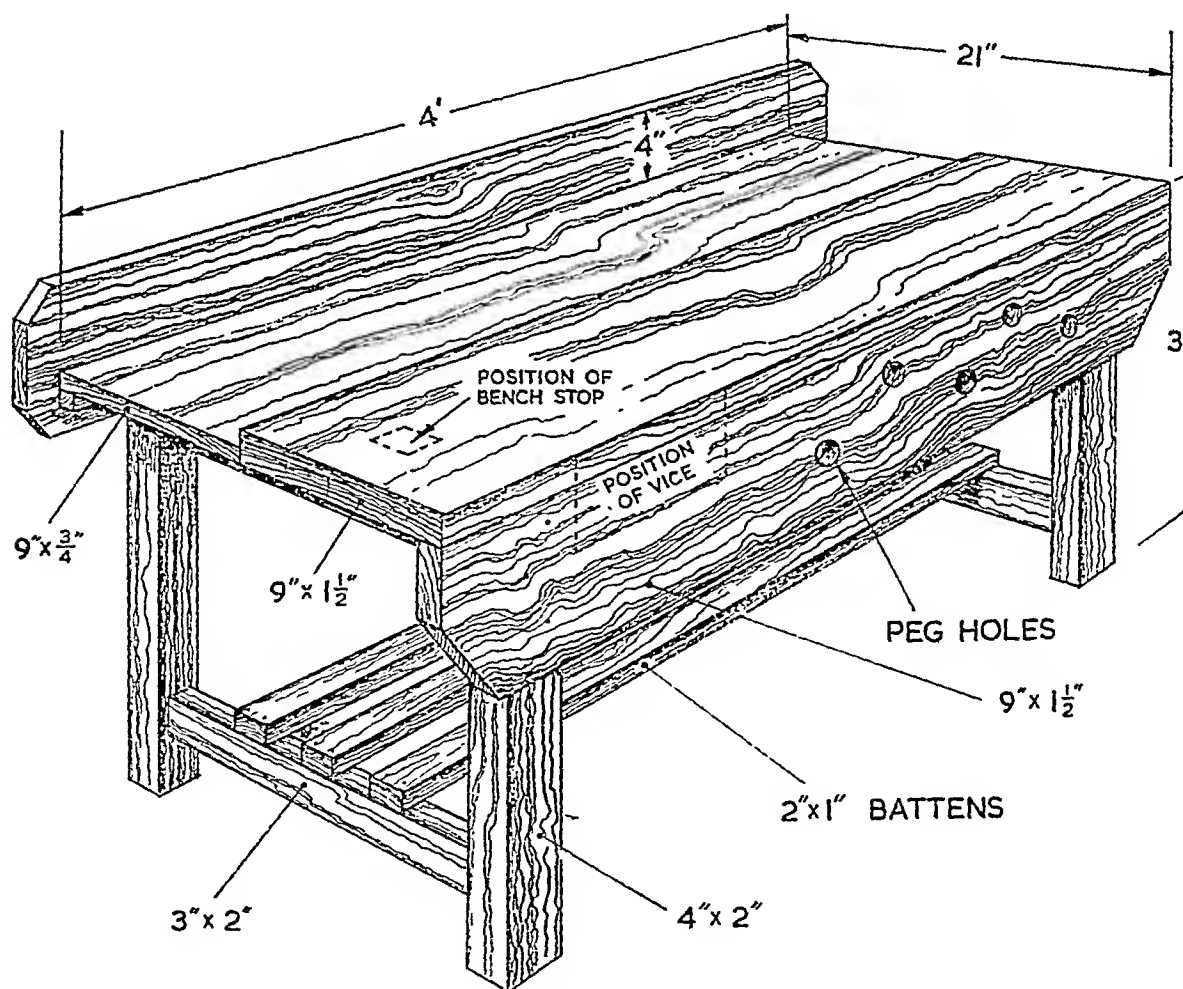


Fig. 10. A bench for the workshop

dowel rod which are hammered with a mallet into holes drilled through both parts of each joint. Two dowel pins are inserted into each joint; the holes drilled in the tenon are slightly staggered from the mortise holes (*Fig. 13*) so that when the dowel is driven home the tenon is firmly drawn into the mortise. This draw-dowel method of securing the joints is extremely simple to do and it provides a very substantial joint for the legs of the workbench.

The top of the workbench is covered with two planks of pine; both are 9 in. wide, the plank forming the front of the bench-top is $1\frac{1}{2}$ in. thick—the one at the back of the bench, forming the recess, is only $\frac{3}{4}$ in. thick. The length of both planks is the same and they are fitted to the leg frames to overhang by 4 in. at both ends. The planks should be secured to the leg frames with screws driven through the underside of the top rails; no nails or screws should be fastened

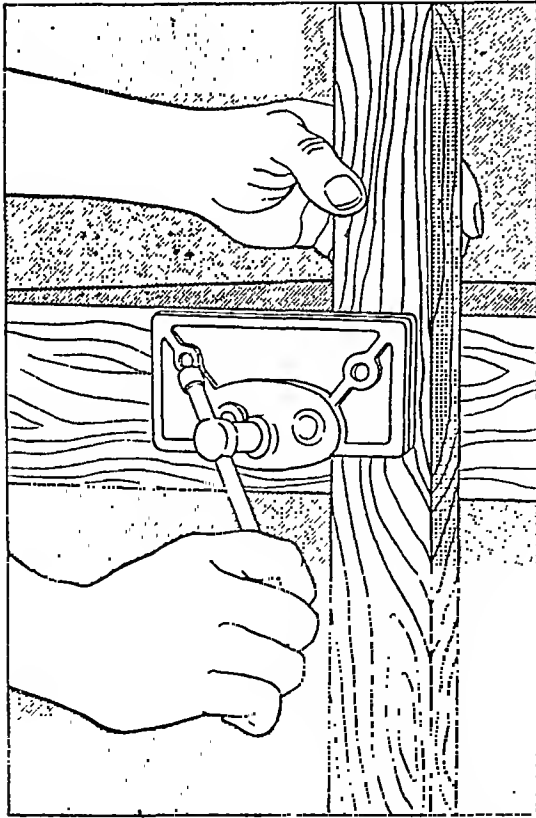


Fig. 11. A sensible type of bench vice for general handyman use

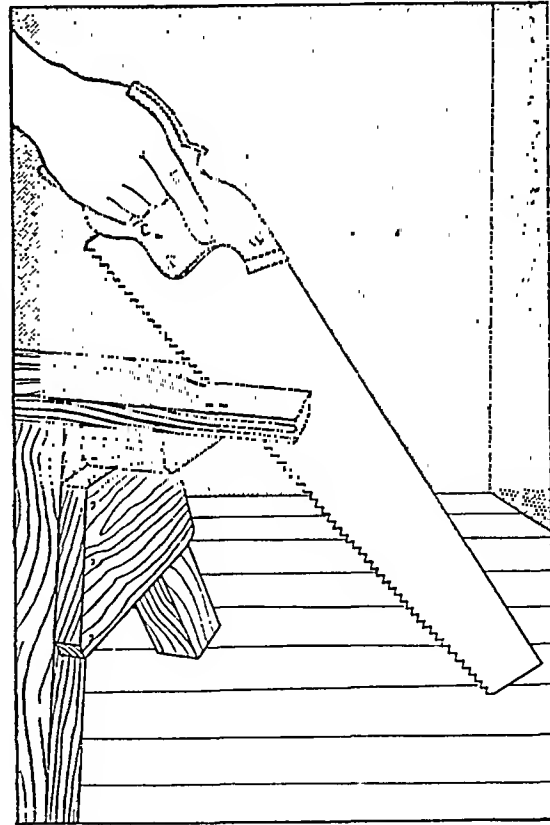


Fig. 12. Using a handsaw. Note correct finger grip. Picture also illustrates end construction of a sawing horse

through the top-side of the bench-top. The front of the workbench is faced with a piece of 9-in. by 1½-in. prepared pine, screwed to the legs and to the edge of the front plank of the bench-top, which overlaps the facing plank. The latter has the lower corners cut away (*Fig. 10*). The back of the bench consists of a length of 9-in. by 1½-in. wood secured to the legs and to the back edge of the bench-top. The back-board rises 4 in. above the level of the back of the bench (*Fig. 10*) and all corners are cut away as shown. Lengths of 2-in. by 1-in. battens are nailed to the lower rails of the legs to form a shelf.

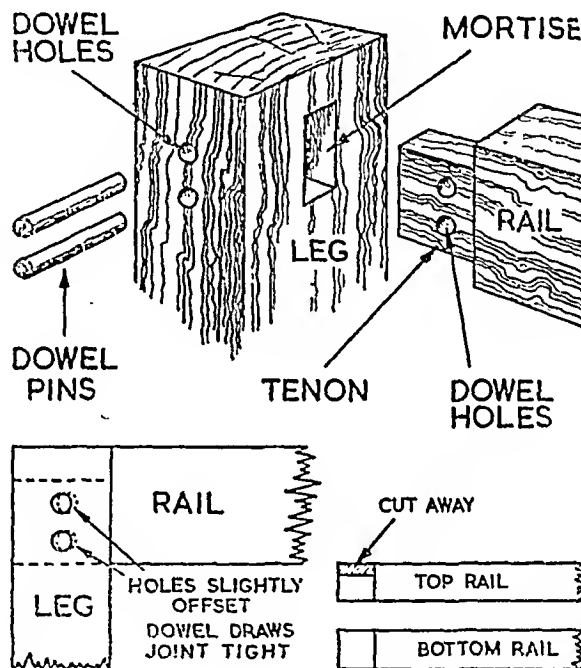


Fig. 13. Mortise and tenon joint

The completed workbench requires fitting for woodwork. The front board should be drilled with a series of holes as shown in *Fig. 10*. A peg consisting of a short length of broom-handle fits into any of the drilled holes to support the end of a long piece of wood being held in the vice. The staggered placing of the holes enables the peg to be adjusted to support pieces of varying widths and lengths. The vice may be a simple wood screw, as illustrated in *Fig. 14*. The wooden screw vice is quite suitable for most carpentry jobs, the metal vice is suitable for holding wood and other materials; it costs a little more than a wood vice, but the extra expense is well worth while. If a metal vice is used for woodwork the jaws of the vice should be shielded with odd pieces of scrapwood, to prevent marking the timber held in the vice. Another workbench necessity is a bench-stop. A recom-

mended type of adjustable metal bench-stop is shown in *Fig. 15*. The gripping edge of the stop is raised or lowered with a screw; when not in use the stop closes flush with the bench-top.

In addition to the bench fittings some smaller items of workshop equipment for woodwork will be required, and these can be made by the handyman. This extra equipment consists of a sawing 'horse' or stool, a bench-hook and a mitre block.

Making a Sawing Horse: The construction of a sawing horse or stool is shown in *Fig. 16*. 4-in. by 2-in. softwood is suitable for the top and legs. The height of

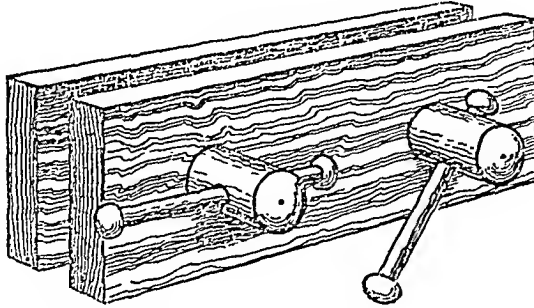


Fig. 14. Wood screw vice

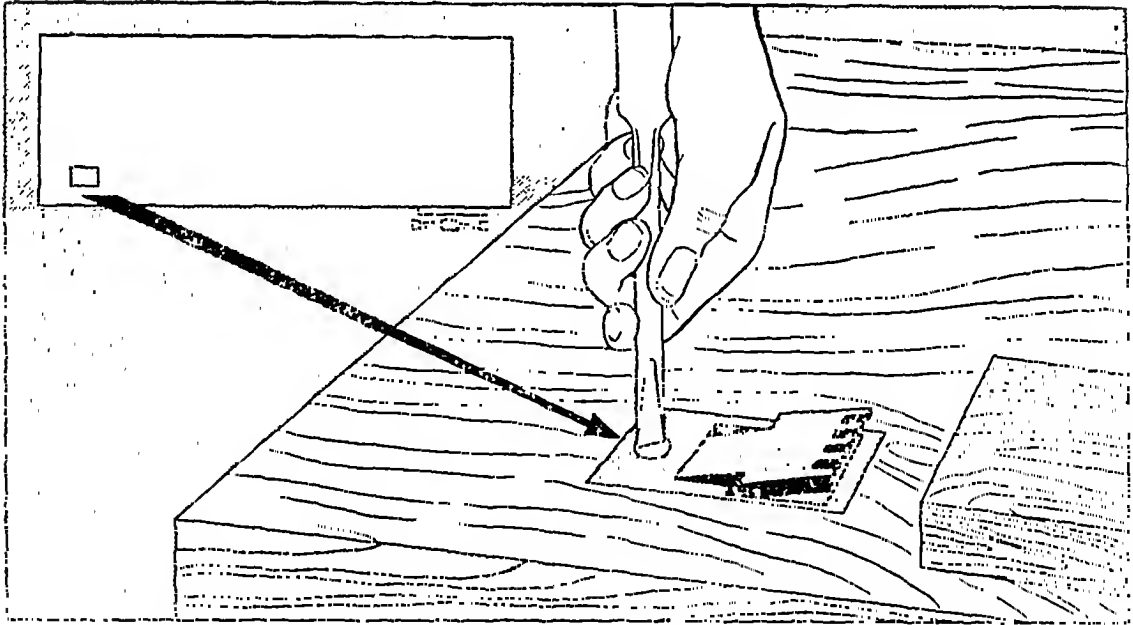


Fig. 15. Teeth of bench-stop are raised above level of bench-top when control screw is rotated

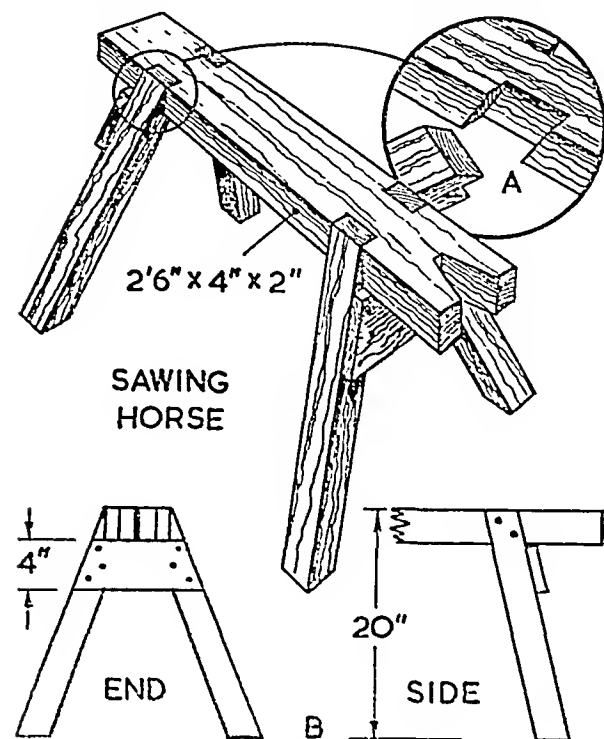


Fig. 16.

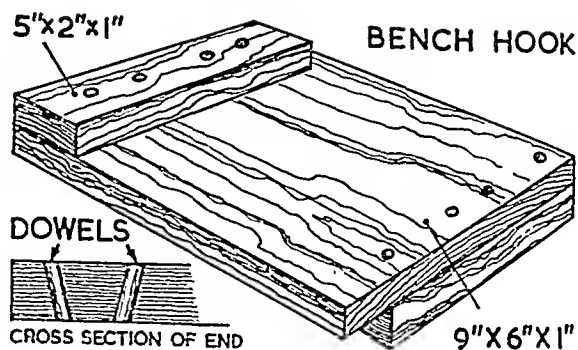


Fig. 17.

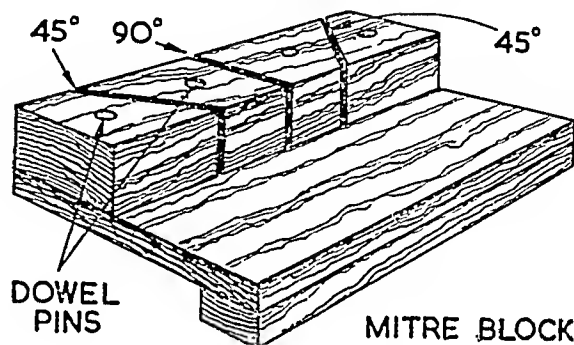


Fig. 18.

the stool should be about 20 in. (depending on how tall the handyman is), length 2 ft. 6 in. to 3 ft. The legs should splay outwards from the top, and towards the ends of the stool, as shown in *Fig. 16(b)* which also shows how a piece of 4-in. by 1-in. softwood is nailed across the legs each end, under the top, to brace them. The legs are jointed into the top with the simple half-joint illustrated in *Fig. 16(a)* (wood joints are dealt with in detail in a later section of this book) and the legs are screwed into the sides of the top. One end of the top of the horse is cut into a V shape to prevent the blade of a saw from cutting into the top of the horse.

Making a Bench-hook: This useful piece of equipment is illustrated in *Fig. 17*. It consists of a piece of wood 6 in. by 1 in. cut to a length of 9 in. A piece of 5-in. by 2-in. by 1-in. timber is attached to each end of the main piece (see *Fig. 17*) on opposite sides. These cross-pieces should be secured to the main piece with glued dowels driven into holes through both pieces each end (*Fig. 17*).

Making a Mitre Block: This piece of workshop equipment is used to guide a saw when cutting square ends and for mitring the corners of frames and mouldings. The mitre block (see *Fig. 18*) consists of a main piece of wood to which is affixed cross-members on the underside and the top. The under piece holds the block firmly in place against the front edge of a workbench. This should be affixed to

the main piece with glued dowel rods as shown in the top piece. The piece on the top of the blocks is sawn through in three places (see *Fig. 18*); one of the slots is cut at an angle of 90° , the other two are cut at angles of 45° . It is essential that the slots are cut accurately. Mitre blocks may be purchased ready made if the handyman is doubtful about his ability to cut the slots correctly.

This completes the modest basic equipment for the home handyman's workshop, and from this simple beginning—either the table-top workbench, or the bench for the workshop—can be built up a complete outfit of tools and equipment to tackle any job in or about the house. Additional pieces of equipment are described in later sections dealing with their use; a more advanced handyman's workbench is also described later.

HANDYMAN'S BASIC TOOL OUTFIT

In the simple way that the would-be home handyman can build up a well-fitted workshop from a small amount of basic equipment, so the same thing can be done

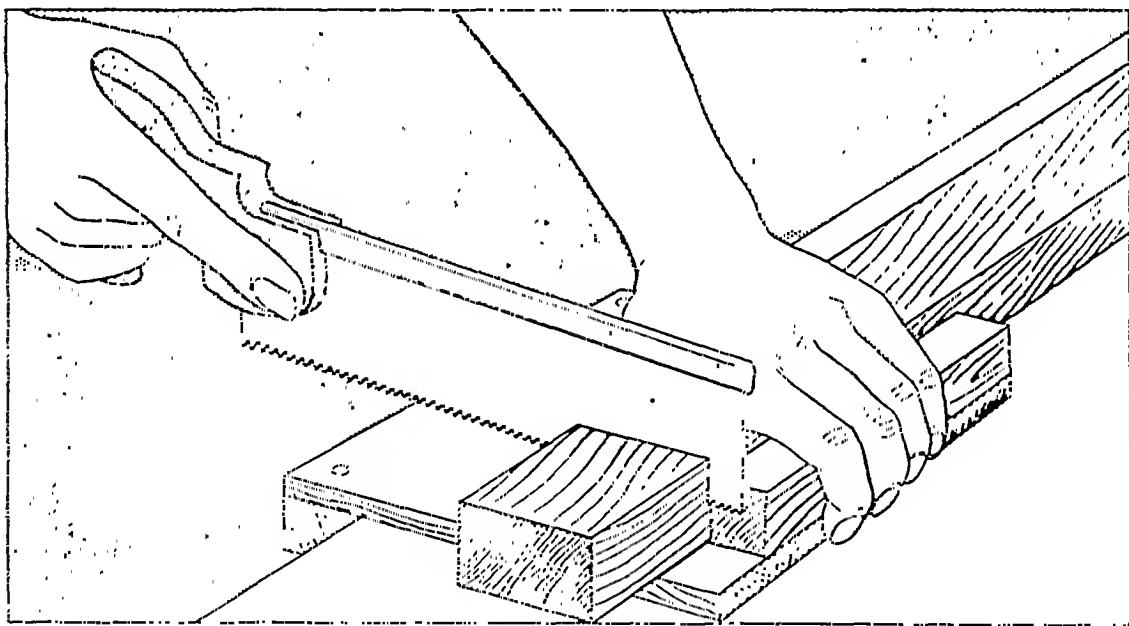


Fig. 19. Illustrating the use of a bench-hook. (See page 28 for details of construction.) In this drawing one of the raised ends of the bench-hook is concealed behind the saw and the hand. The object of a bench-hook is to protect the bench and hold steady the piece of wood to be sawn

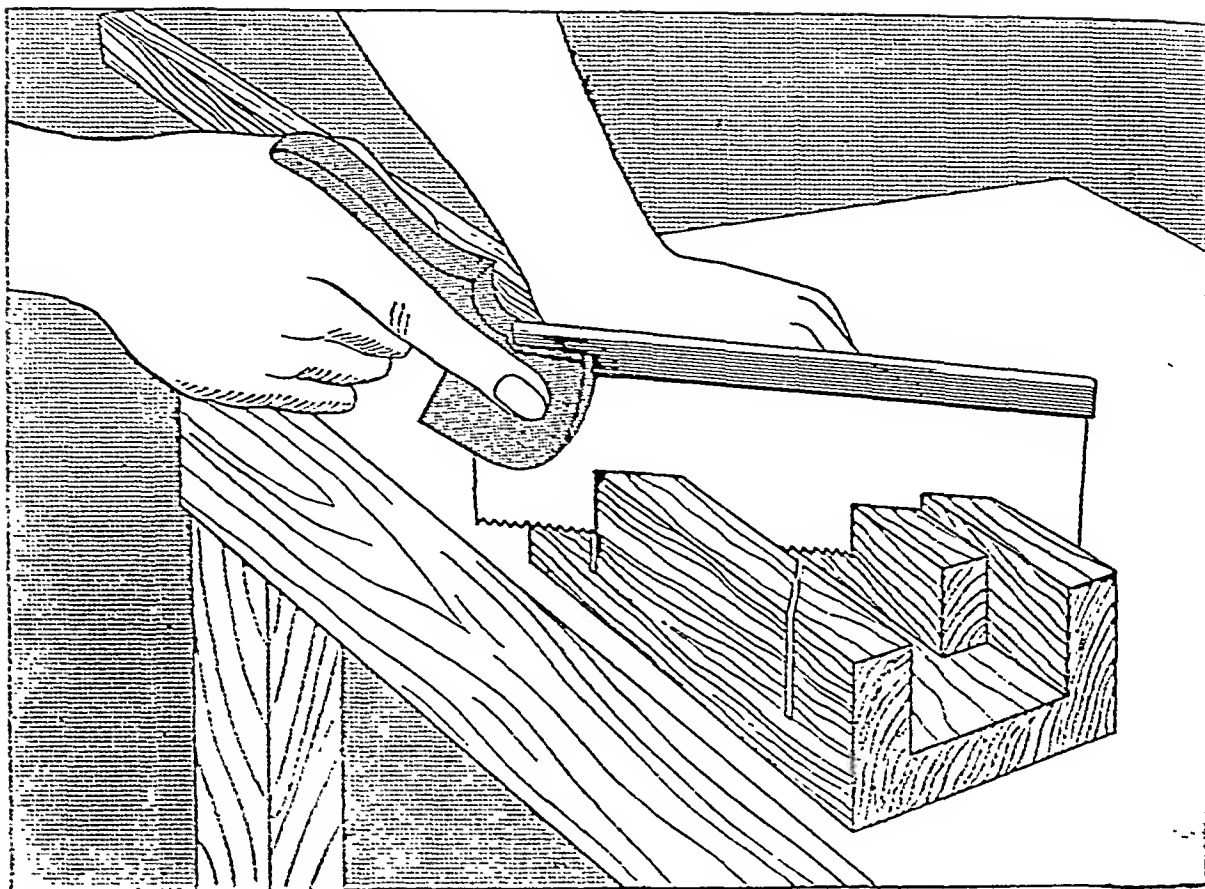


Fig. 20. Use of a mitre box and illustrating the correct holding of a tenon saw

with the tools required for home-handyman jobs. Quite a modest start can be made with very few tools, and the basic outfit added to as progress is made and additional tools become necessary. A basic tool outfit is described below, and the tools listed are sufficient to tackle *most* of the jobs within the scope of the handyman. Any special tools required are mentioned in following sections dealing with their use.

The handyman is strongly advised to purchase tools of good quality; it is most definitely false economy to buy cheap tools. The handyman does not expect to become an expert from the very start, but a good reliable tool reflects in the quality of the workmanship—cheap tools produce poor workmanship and may cause accidents; a tool of good quality gives confidence to the user. In most cases jobs take longer to do with cheap tools. The cost between a good tool and a cheap one is usually very small, the return in saving of time and the better quality of the

work is great; moreover the life of a good tool is very much longer than that of a cheap tool so that there is no saving in the long run.

Here is a list of the basic tools, followed by descriptions of them:

Handsaw	Glue pot
Hacksaw	Oilstone
Claw hammer	Tenon saw
Wooden mallet	Nest of small saws
Side-cutting pliers	Warrington hammer
Plane	Pincers
Screwdrivers	Footpad wrench
Chisels—1 each $\frac{1}{4}$ in., $\frac{1}{2}$ in. and 1 in. firmer chisels	Hook scraper
Brace and bits	Folding rule
Trysquare	Marking gauge
Wood rasp	Bradawls
'G' cramps	Two sets cramp heads
Soldering iron	Nail punch
	Oil-can

With the tools listed above the handyman of moderate ability should be able to tackle a wide variety of jobs. It is not necessary to purchase all the tools at one time—many of them may already be in the possession of the householder. Together with the basic tools described below are descriptions of other tools in the same groups which may be added to the basic outfit at some future date.

Handsaws: There are three types of handsaws which are the main tools for cutting wood to shape. First is the *ripsaw*; this is used for cutting a plank down its length, i. e. with the grain; obtainable in blade lengths of 24—28 in., with three or four teeth to the inch. This is not an essential tool in the basic outfit, as is the *crosscut* handsaw, which can be used for sawing with the grain *and* across the grain of a piece of wood. This tool should not be confused with a crosscut saw used for felling trees. Crosscut handsaws are available in blade lengths ranging from 22 in. to 28 in. The selection of a suitable length depends on the reach of the user; 24 in. is a good average length. The number of teeth per inch in a crosscut handsaw is from five to eight, the fewer the teeth the coarser the cut. The handyman will find a saw with seven teeth (points) to the inch suitable. In the same group of handsaws is the *panel* saw which is used for fine sawing, and for cutting large joints. Panel saws have blades ranging in length from 18 in. to 24 in., with seven to twelve teeth per inch. The panel saw may be added to the basic outfit at some future date.

Tenon Saw: This has a variety of uses for workbench jobs, and for cutting wood-work joints. Lengths of tenon-saw blades range from 12 in. to 16 in., with twelve to fourteen teeth to the inch. A handy average size is one with a 14-in. blade having thirteen teeth per inch. A *dovetail* saw which is smaller though similar in shape

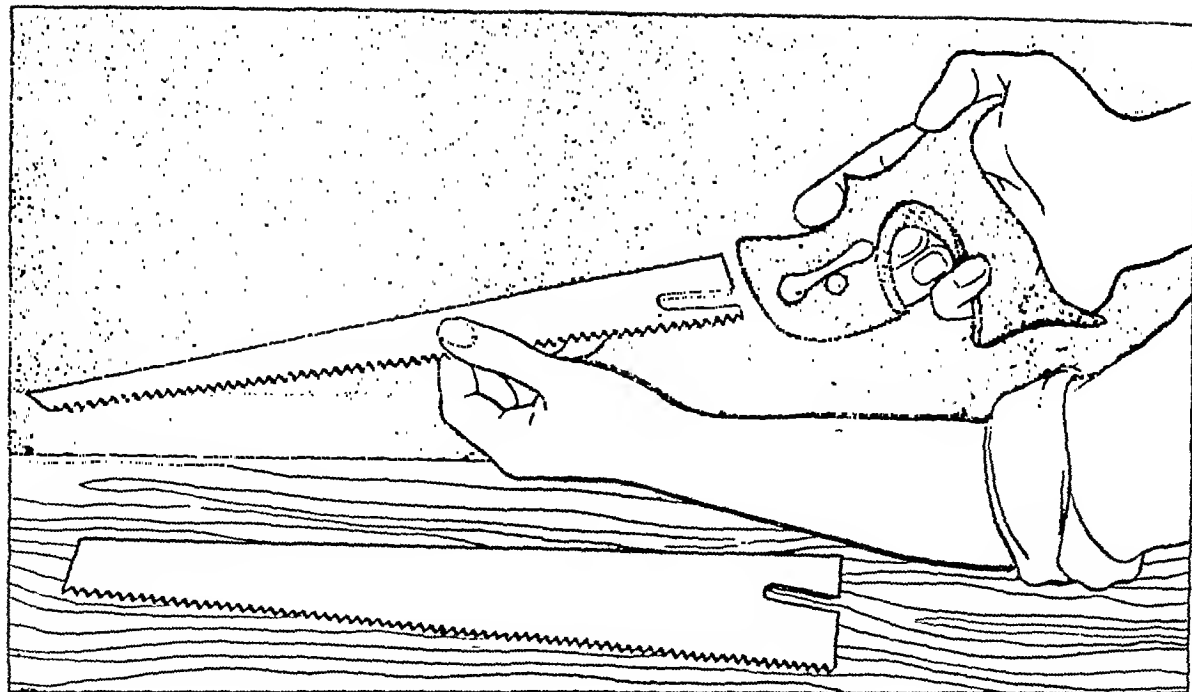


Fig. 21. A useful set for the handyman—saw handle with interchangeable blades for different purposes

to a tenon saw, is used for cutting small joints and for fine work. This fine-toothed saw has from eighteen to twenty-two teeth to the inch, with blade lengths of 8 in. and 10 in. The dovetail saw is an additional tool to the basic kit.

Nest of Small Saws: This consists of a handle into which can be secured interchangeable blades. The saws are used for cutting wide curves and in awkward places where a large saw cannot be used. The blades available are a pruning blade (16 in.), a compass blade (14 in.), and a keyhole blade (10 in.).

One of the uses of the keyhole or pad saw is described on page 81.

Hacksaw: This is a metal-cutting saw. Blades of different length and setting of teeth are interchangeable in the handle. Also obtainable is a 'junior' hacksaw with a 6-in. blade in a metal frame and handle (see Fig. 22).

Hammers: These useful tools are obtainable in a variety of shapes and sizes. Three types are illustrated in Fig. 22. Of these the handyman's basic tool outfit should include the *Warrington* hammer and a *claw* hammer, others being added at some future date when their inclusion in the tool outfit becomes necessary. Hammers are sold with heads of varying weights; the choice should be to suit the user. 11 oz. is a good size for a *Warrington* hammer—26 oz. is average for a claw hammer. When the claw end of the claw hammer is used for extracting nails from wood

a small piece of waste wood should be placed under the head of the hammer to avoid marking the wood. A wooden mallet (*Fig. 22*) is another basic necessity. The difference in use between a hammer and a mallet is that the former is used for striking metal, while the latter is used for striking wood. A hammer should *never* be used for striking the handle of a wood chisel; a mallet should *never* be used with a cold chisel of metal.

Other types of hammers are described in sections dealing with their use.

Pliers: A pair of pliers is one of the most useful tools in the handyman's workshop. Some types of pliers are illustrated in *Fig. 22*. A good choice would be a large pair of 'gas' pliers and a pair with a side-cutting head; this means that the jaws have chiselled meeting blades that are used for cutting nails and wire.

Pincers: Also illustrated in *Fig. 22*. Choose a pair with claw-and-ball handle ends of the type shown. Allied to pincers are nippers, the inclusion of which is not essential in the basic outfit.

Wrench: A medium-sized wrench with 'footpad' jaws is another basic necessity. Choose one which has an adjustable head. Used mainly for simple plumbing jobs the footpad wrench has a variety of workshop uses.

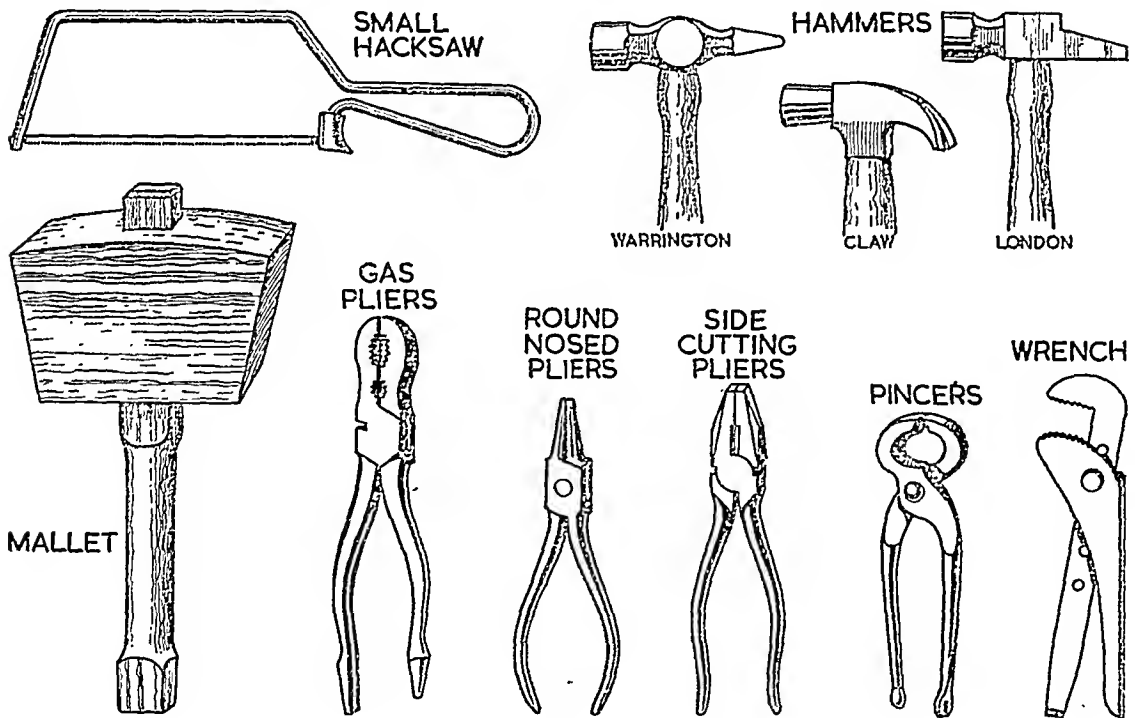


Fig. 22.

Plane: This is another kind of tool which is obtainable in a wide variety of sizes and types. If the handyman intends using prepared timber mainly, a *smoothing* plane will be sufficient for the basic kit. If a quantity of sawn wood (timber which has not been prepared by passing through a planing machine) is going to be worked the basic outfit should include a *jack* plane. Both types are illustrated in *Fig. 24*, and both may be obtained in wood or metal; wooden planes are cheaper than metal, but the amateur will find a metal plane easier to handle and set, and much more robust for general use. An optional addition to the basic outfit is a *rebate* plane (*Fig. 24*). Other types of planes are referred to in the section on Carpentry.

Scraper: A hook scraper is used for finishing wood after it has been smoothed with a smoothing plane. It is a very useful tool for home-handyman jobs such as easing the edge of a door or for easing a drawer which jams. Hook scrapers of the kind shown (*Fig. 24*) are fitted with removable blades that may be replaced when they become worn.

Screwdrivers: Essential in the basic outfit. Types are illustrated in *Fig. 24*. These range from very large ones with a blade length of 14 in. to tiny ones with blades of 2 in. The basic outfit should include a large screwdriver, a medium-sized screwdriver, preferably of the ratchet type, and a small screwdriver which, as

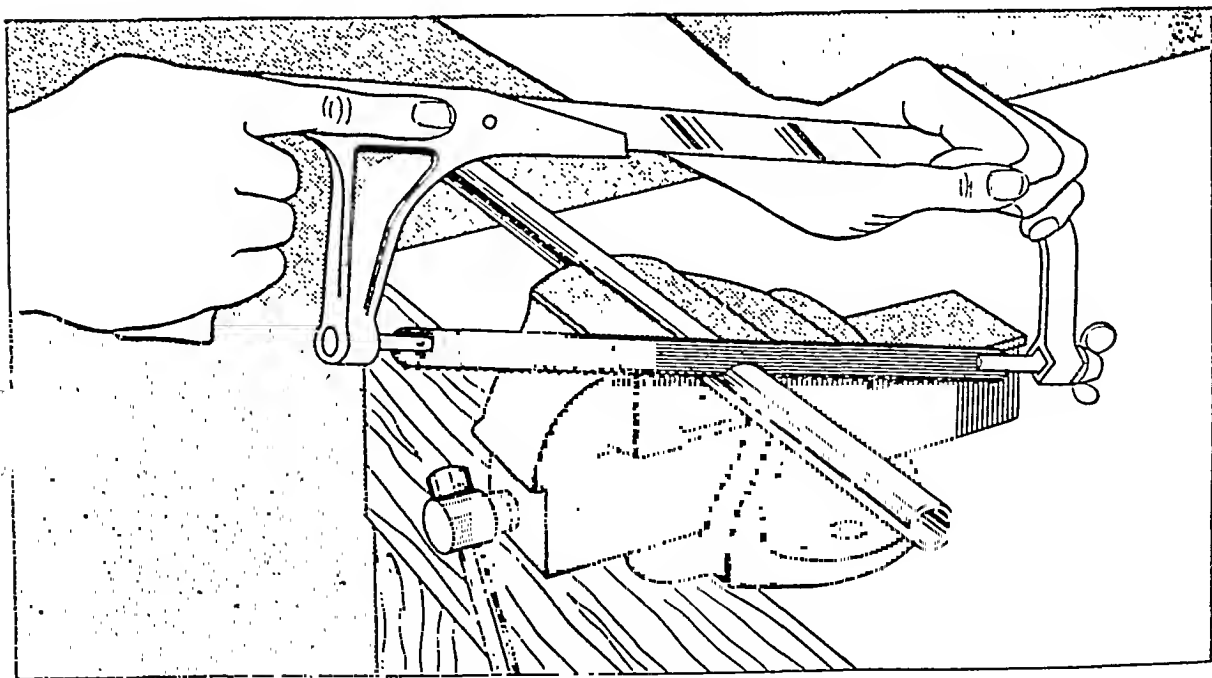


Fig. 23. How a metal-cutting hacksaw is held in use

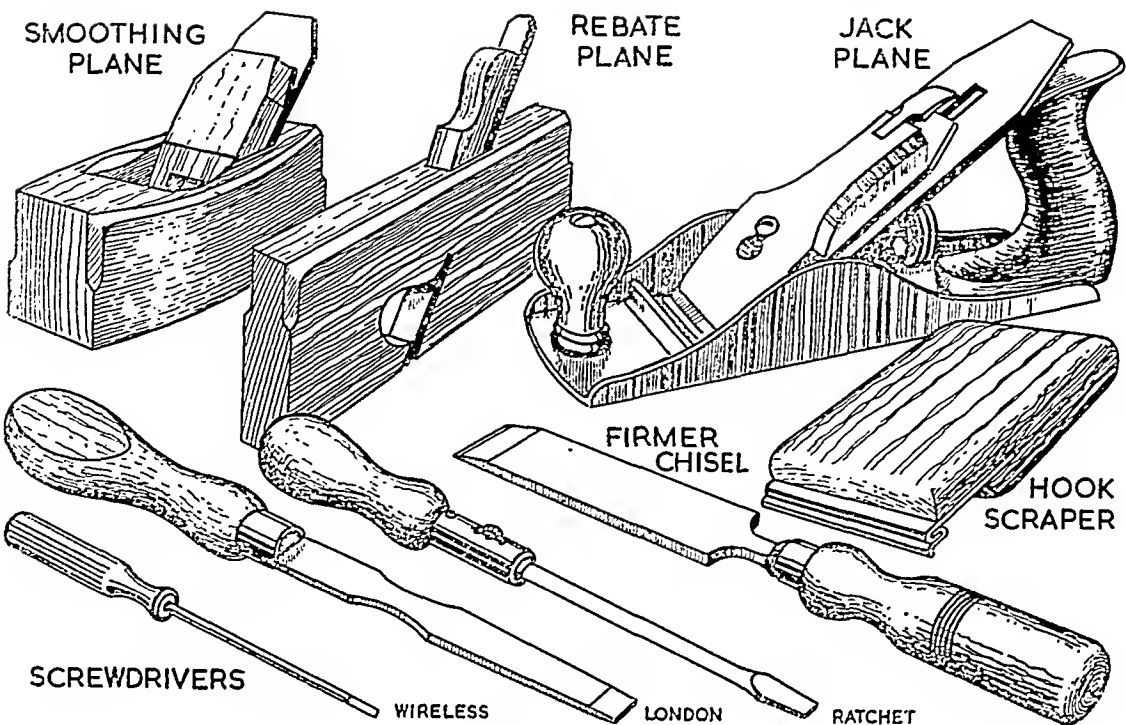


Fig. 24.

it may be used for electrical repairs, should be fitted with an insulated handle.

Chisels: A set of firmer chisels should be included in the basic outfit. The set should consist of three sizes (blade widths), 1 in., $\frac{1}{2}$ in., and $\frac{1}{4}$ in. Additional sizes may be added at a later stage of progress. Types of chisels other than firmer chisels (*Fig. 22*) are dealt with in the section on Carpentry.

Brace and Bits: Basic outfitting can commence with a good quality brace with a small range of bits, which fit into an adjustable chuck of the brace. Types of bits are illustrated in *Fig. 25*, with a brace. The choice of bits will largely depend upon the requirements of the user; a good basic set would be $\frac{1}{4}$ -in., $\frac{1}{2}$ -in., $\frac{3}{4}$ -in., 1-in., and 1½-in. twist bits, with intermediate small sizes of drill bits, an expansion bit and a countersink. A ratchet brace is an improvement on the ordinary brace.

The brace, together with its different kinds of bits, is intended mainly as a wood-boring tool. It may be used for cutting holes in metal—with drill bits—but the use of a carpenter's brace for metal work would be found slow and laborious. If much metal work is to be done the basic tool outfit should include a drill with a geared wheel (*Fig. 25*). A small hand-drill should be sufficient for light work;

BASIC TOOL OUTFIT

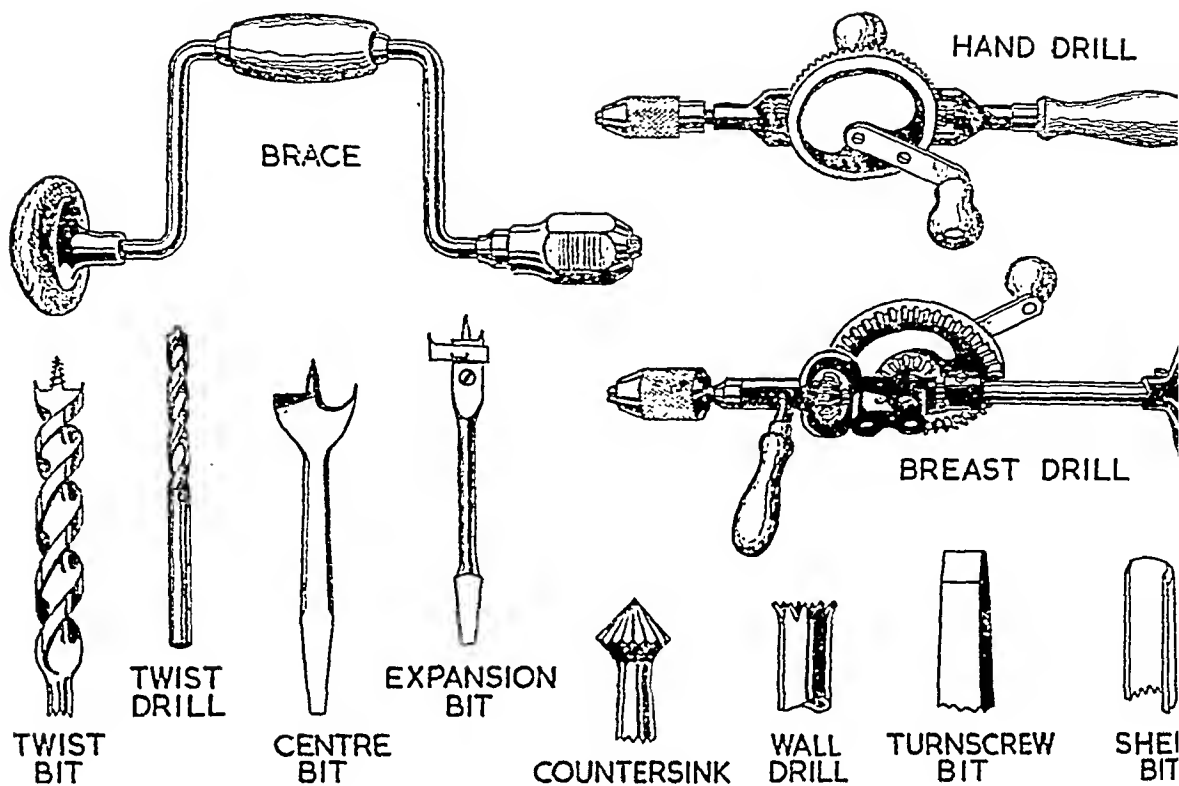


Fig. 25.

a breast-drill may be obtained for heavy work—both tools take the same kind of drill bits, the breast-drill of course having a larger chuck capacity than the hand-drill. Although not essential for inclusion in the basic outfit a drill has many uses in household jobs; in addition to boring metal a drill may also be used for boring holes in wood.

Trysquare, Rule and Gauge: These are tools used for marking and measuring (Fig. 26). A try-square with 6-in. blade will be suitable for the basic set. The rule should be of the fourfold variety, 2 ft. or 3 ft. in length. The marking gauge shown (Fig. 26) should not be confused with cutting or mortise gauges which are described with in the section on Carpentry.

Miscellaneous Tools and Equipment: See Fig. 26. The basic outfit should include a *wood rasp*, which is used for shaping and finishing curves—one side of the rasp rounded, the other side is flat—a *bradawl*, some 'G' *cramps*—two should be sufficient to commence with—and two sets of *cramp heads*. The cramp heads are attached to wooden battens with pins placed through holes drilled through the battens; they may easily be adjusted to cramp glued woodwork of various sizes. A *nail-punch* is required, also a steam-jacketed *glue-pot* although some manufac-

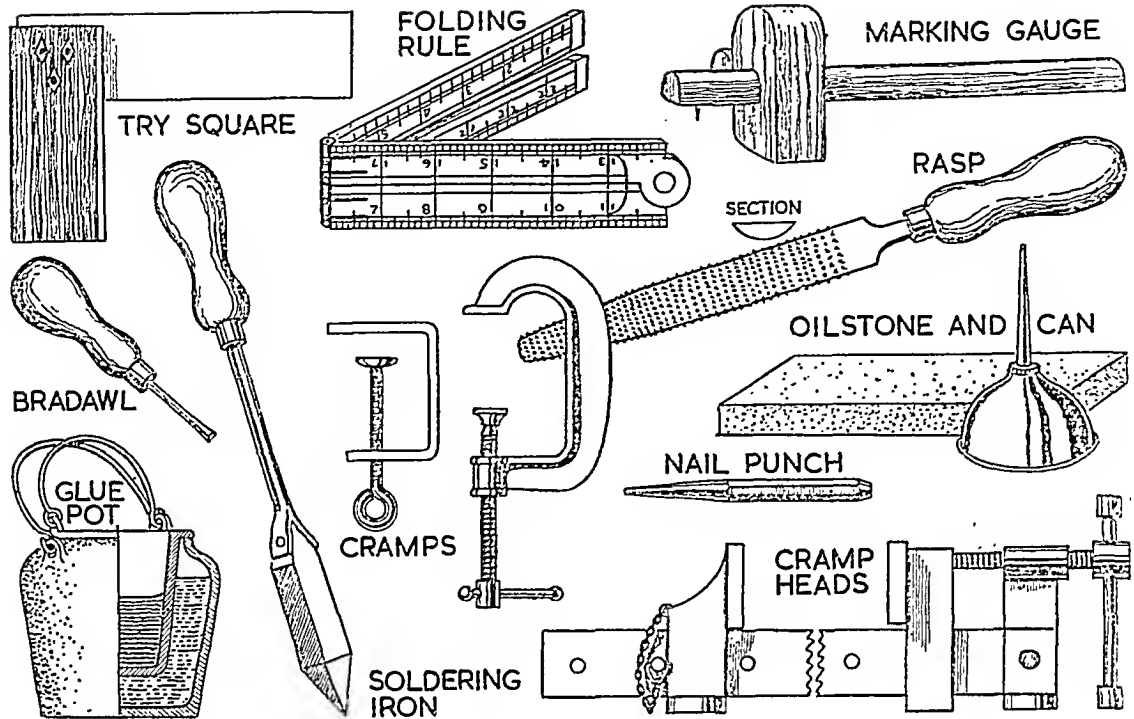


Fig. 26.

turers pack their products in jacketed tins which replace the conventional glue-pot. A *soldering iron* is a good tool for the basic outfit, although it need not be purchased until it is required. An electrically heated soldering iron is the easiest tool for the amateur to use; buy one with a fitment for interchangeable bits (heads) of different sizes. Two more essentials complete the basic outfit; an *oil-can* and an *oilstone* for sharpening tools.

It will of course be appreciated that the composition of the basic outfit may be varied from that given above to suit the individual. The list of tools given forms a complete basic outfit and is suggested as a basis for progression with the addition of other tools as and when required. The complete outfit need not be purchased all at one time. The amateur can commence with a very few tools, adding new ones as jobs requiring them have to be dealt with.

This section would not be complete without a mention of handyman kits and outfits based on electric drills. Although not an essential addition to the basic outfit an electrical drill kit will do much to increase the range of jobs which can be tackled by the handyman. These outfits are based on an electric drill, which can be purchased separately, of fractional horse-power which is a separate unit,

CARE OF TOOLS

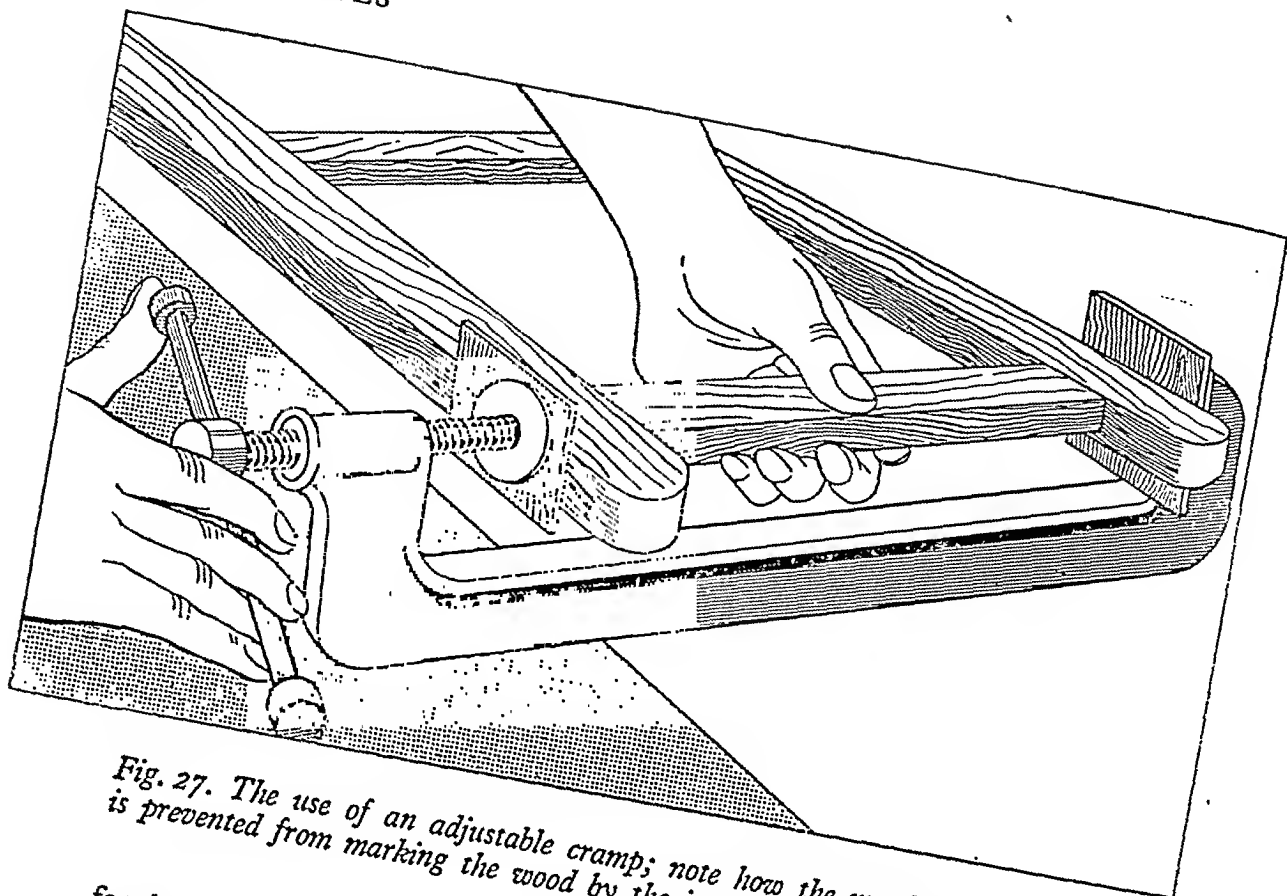


Fig. 27. The use of an adjustable cramp; note how the metal head of the cramp is prevented from marking the wood by the insertion of a thin slip of waste wood

for drilling wood, plastic, brick, masonry and metal—with the appropriate bit of chuck capacity up to $\frac{1}{4}$ in. which is the diameter of the largest bit the drill will take. The drill may be used as a hand-drill, or mounted as a bench-drill with a set of fittings purchased additionally to the drill unit. There are other sets of fittings which may be purchased separately to convert the drill unit for buffing, sanding, grinding, and polishing, also for use as a small lathe for light woodwork, a bench circular saw for cutting timber up to 1 in. thickness, for fretwork, and for machine planing.

CARE OF TOOLS

The wisdom of buying good quality tools is increased by taking good care of them. Tools should only be used for the purpose for which they are intended, they should never be left about, but kept clean and sharp during use, and afforded protection in storage.

The edge of a saw is easily protected between use, with a grooved strip of wood secured over the teeth and held in place with thick rubber bands cut from a motor-car inner tube, as shown in Fig. 28. The keen edge of a chisel may be protected

by racking it instead of keeping it loose in a box or drawer where it may rub against other tools. The rack may consist of a band of leather nailed to a wood backing in loops (*Fig. 28*) or these keen-edged tools may be racked in spring-clips. Some tools may be hung on cup-hooks. Chisels and similar tools may be housed in recesses cut in the back of a workshop shelf. Planes are best stored on a shelf with the edge of the blade protected with a simple guard of wood or leather held in place with stout rubber bands. Bits for drills and braces are best kept in simple racks made by boring a series of holes in a solid block of wood (*Fig. 28*).

Tools and equipment should be stored and racked so that they are easily accessible, there should be a place for everything in the efficient handyman's workshop. If a silhouette of the tool or piece of equipment is painted at the back of the rack or shelf on which it is kept (*Fig. 28*) the correct place for every tool can be seen at a glance. Also the loss of a missing tool is easily discernible and it is a good habit to rack all tools before cleaning up the workshop so that none are swept up and thrown away.

Metal tools should be kept well oiled; especially if they are stored for any length of time. The slightest suspicion of rust should be vigorously attacked with fine emery cloth or soft steel wool.

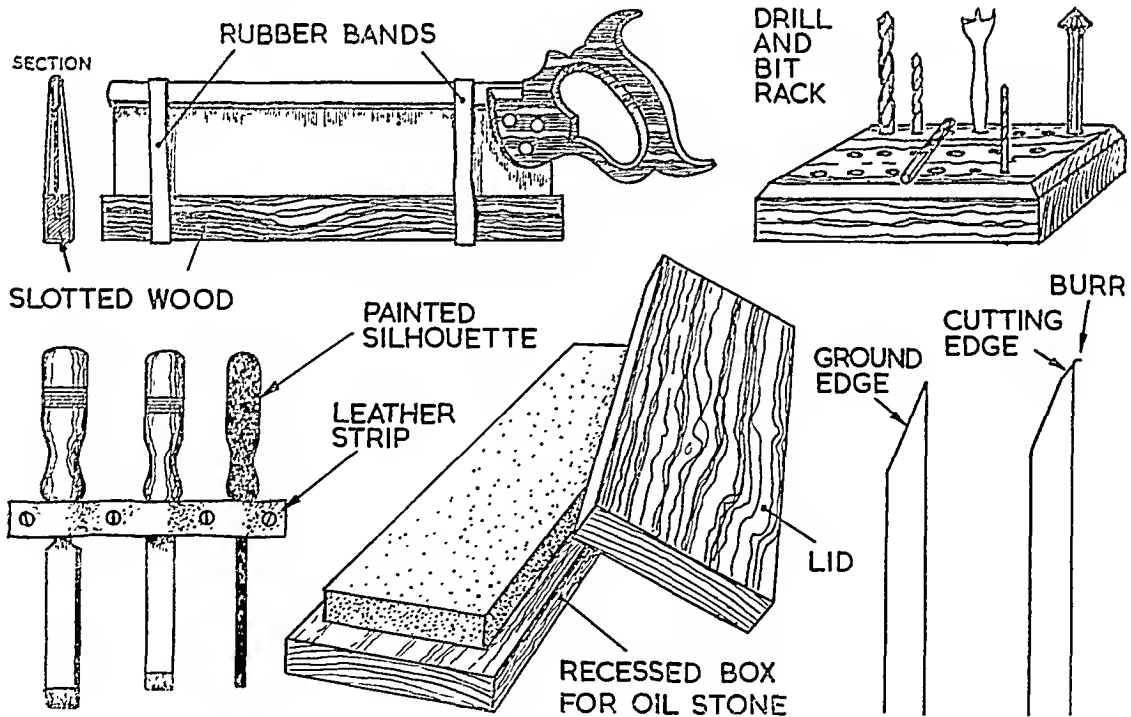


Fig. 28.

Sharpening Tools: Mineral oil should be used for metal tools; the wooden parts of tools are best treated with an occasional rub of linseed oil. Keen-edged tools must be kept sharpened during use and should always be resharpened at the end of the session of work. An oilstone is used for sharpening keen-edged cutting tools; the best type of oilstone is a double-sided one—a coarse side for cutting down edges that have been nicked, and a fine side for restoring the keen cutting edge. A simple box-case for the oilstone should be made to keep it free from grit and dust, and to protect the underside when the stone is in use (*Fig. 20*). New chisels and plane blades are supplied with edges ground, but not sharpened; the method of sharpening and resharpening these tools is the same. Spread a film of oil evenly over the fine side of the oilstone, place the ground edge of the tool flat on the surface of the stone, then raise the free end of the blade so that only the tip of the cutting edge rests on the oilstone. Move the blade backwards and forwards on the stone, taking care to maintain the blade at the same angle— 30° from the stone—or the cutting edge will be rounded instead of bevelled as shown in profile in *Fig. 28*, which illustrates the difference between a ground edge and one sharpened on an oilstone. In addition to ensuring that the blade should move in the same plane, care should be taken to maintain even pressure across the width of the blade to keep the cutting edge square with the sides of the tool. After working a keen edge the blade should be turned over with the back of the cutting edge resting on the oilstone flat (*Fig. 28*) and the tool should be worked in a series of circular movements to remove the burr set up in sharpening. An exaggerated profile of edge burr is shown in the illustration. The sharp corners of plane blades should be taken off by rounding them on an oilstone.

Drills and bits are best sharpened with small files, but every care should be taken to maintain the manufactured cutting angle. Drills with carbon steel tips cannot be resharpened. But they should never dull if properly used. It is not a difficult matter for the handyman to set his own saws. This is done with a plier type saw-set which, if used properly, ensures that all the teeth are set at exactly the same angle. Saw-sharpening is not really a job for the inexperienced person; most hardware stores have a saw-setting service which the amateur is advised to use.

Keeping the tools in good condition is a safeguard against workshop accidents... it is always the blunt tool that slips!

This completes the information about the handyman's basic tool outfit; other tools are described in later sections dealing with their uses, and the use of tools for special purposes is also described later in the book.

NAILS AND SCREWS

Most small items of workshop stores, such as hinges, door-catches and handles, bolts, etc., are only obtained when they are required for a specific job. Workshop stores which should be kept in stock are those in general use... nails and screws.

There are many different kinds of these types of securing materials, and each of them do a different job. Main types are described below, and the use of the correct nail or screw for the job is specified in the instructional sections.

Nails: Some of the most common nails in general use are *wire nails* (also known as 'French' nails). These are circular nails with flat round heads (all the nails described are illustrated in *Fig. 29*). Wire nails are made in lengths from $\frac{1}{2}$ in. to 6 in. and are obtainable in bright steel finish, or galvanized for outdoor work. *Oval wire nails* are used instead of round nails for better quality work; the heads are easier to sink below the surface of wood and there is less likelihood of splitting. Finishes and sizes are from $\frac{1}{2}$ in. to 6 in., bright steel or galvanized. *Lost-head wire nails* are round in shape with very small heads that leave only a very small visible hole when they are punched in; they are obtainable in bright steel or galvanized finishes in sizes from $\frac{1}{2}$ in. to 4 in. *Cut nails* have rectangular shanks with different shaped heads; in this group of nails are *cut clasp nails* which hold very firmly—made in lengths from $\frac{3}{4}$ in. to 8 in.—*cut floor brads* used for fixing floor-boards, with square ends which cut through the grain without splitting the wood—made in lengths from $1\frac{1}{2}$ in. to 3 in.—*cut brads* (also known as 'joiner's brads') are the same shape as floor brads but lighter—made in lengths from $\frac{1}{2}$ in. to 3 in. All cut nails have a black iron finish. *Panel pins* are fine nails with small heads which are easily punched in and leave very small holes—obtainable in lengths from $\frac{3}{8}$ in. to 2 in., bright steel or copper finish, also obtainable in copper. *Wire lath nails* have fine shanks and large heads, obtainable in galvanized finish only, in sizes from $\frac{3}{4}$ in. to $1\frac{1}{4}$ in. *Cut tacks* (commonly known as 'tin-tacks') are sold in sizes ranging from $\frac{1}{4}$ in. to $1\frac{1}{4}$ in. Generally with a blued finish, they are obtainable in tinned, black iron and galvanized finishes, and also obtainable in copper. *Sprigs* are small headless nails used for reglazing a window, securing lino, etc.—black iron finish in $\frac{1}{2}$ -in. and $\frac{3}{4}$ -in. lengths. *Brass pins* are used for securing small fittings; in sizes from $\frac{1}{4}$ in. to $1\frac{1}{4}$ in. *Roofing nails* (sometimes called 'screw nails'), mainly used for securing sheets of corrugated iron, have twisted shanks that turn in the wood when driven in—sizes from $\frac{3}{4}$ in. to $2\frac{1}{2}$ in., galvanized finish. *Wire clout nails* have large heads; used mainly with fabrics (upholstery, roofing felt, etc.), in sizes from $\frac{3}{4}$ in. to 3 in., bright steel or galvanized finish.

This by no means exhausts descriptions of all types of nails, but those listed above are in general common use. Nails are purchased by weight (by the pound or part of a pound) except some small nails—tacks in particular—which are bought by the packet. Buy nails as required—they are most easily stored in glass jars with screw tops. Never use bent or rusted nails; nails will bend when driven if the hammer is not held properly, as shown in *Fig. 30*, and used with an easy wrist movement and a clear arc of the hammer head. When two or more nails are used in the same piece of wood they should slant as shown in *Fig. 5* to secure a better grip. If the wood splits easily, start the nail hole with a bradawl, cutting the hole across the grain, or cut the point off the nail.

BASIC TOOL OUTFIT

Screws: A screw is probably the most useful item of stock. Apart from screws for special purposes there are three main types, named by the shapes of their heads. These (shown in *Fig. 29*) are *round-head* screws, *raised-head* screws and *counter-*

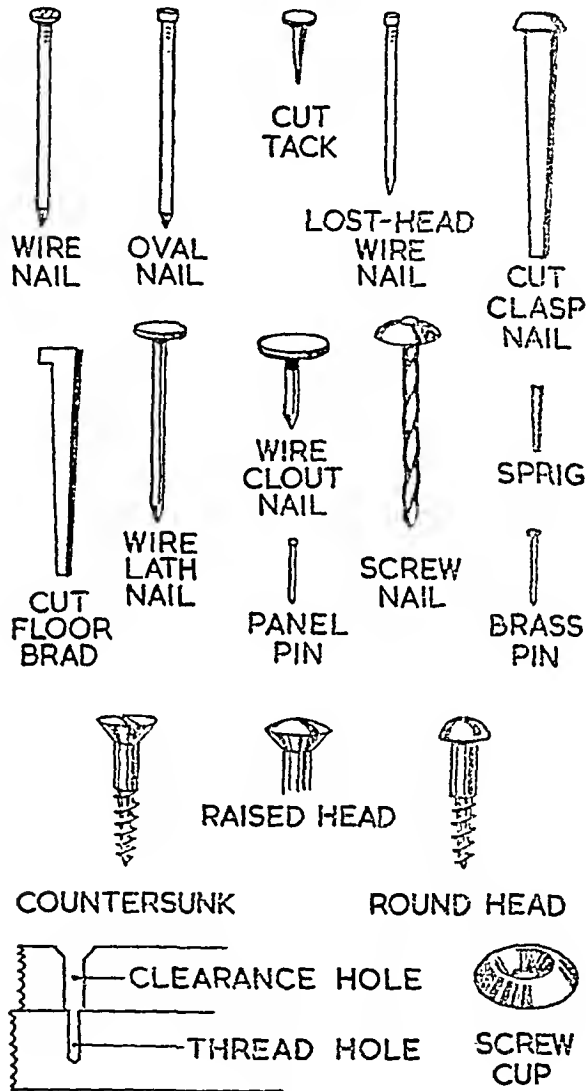
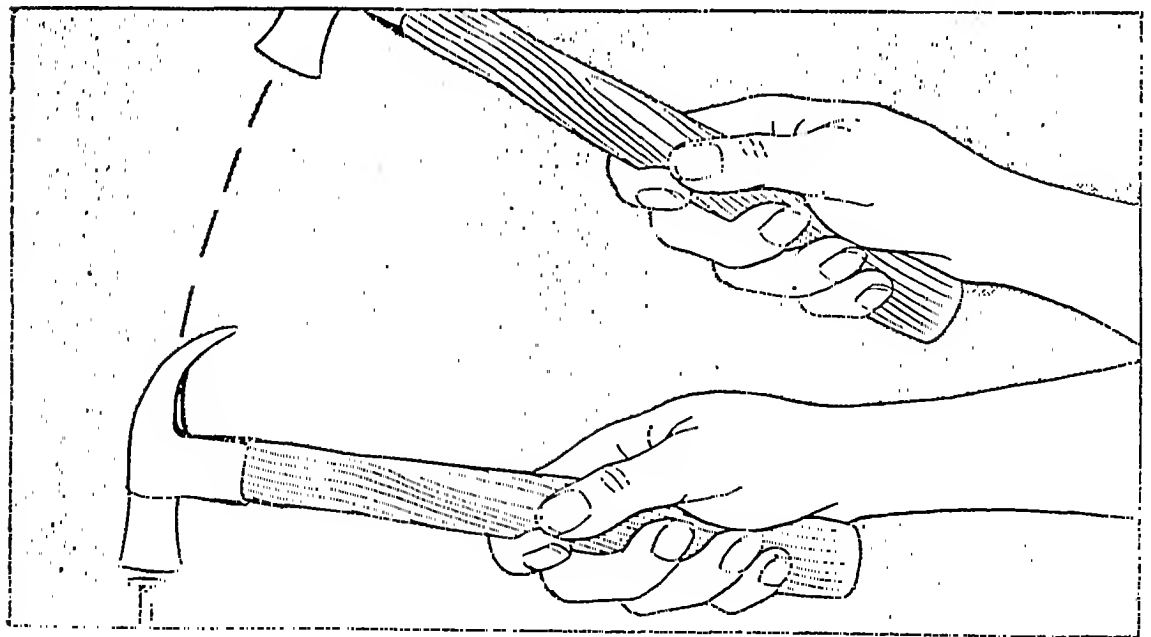


Fig. 29.

nk screws (also commonly referred to as 'cheese' heads). Screws are manufactured in a variety of materials and surface finishes; the common wood screw is of mild steel, other materials used for screws are brass, copper, aluminium and gun-metal. Finishes include bright steel, Berlin blacked, tinned, galvanized, blued,

nickel-plated, brassed, and coppered, etc. Mild steel and brass screws are obtainable in a wide range of lengths and thicknesses. The less-used screws with fancy finishes have a limited size range. The size of a screw is given by its length and thickness of shank (gauge). The length of screws is the distance between the point and the widest part of the head; the gauge is the diameter at the top of the shank and all classes of screws are made in gauge numbers from 0000 to 50—the lower the gauge number the thinner the screw—gauge numbers outside 4 to 12 are not often used. The handyman's workshop stock should include the following countersunk screws: $\frac{3}{8}$ in. No. Fours, $\frac{1}{2}$ in. No. Sixes, 1 in. No. Eights, $1\frac{1}{2}$ in. No. Tens and 2 in. No. Twelves. Screws are sold by quantity, in dozens or grosses; the most economical way of buying screws is by the gross, in small cardboard packages which bear the length and gauge number.

Screws are driven with a screwdriver; the width of the screwdriver blade should be of a sensible size to fit snugly in the turning slot cut in the head of the screw. It should not be wider than the width of the screw head, but may be a little narrower. The correct method of housing a screw is illustrated in *Fig. 29*. First a hole is drilled to take the thread; the top of this hole is enlarged by redrilling



*Fig. 30. The correct method of holding a hammer when driving a nail into wood.
The hammer shown is a claw-hammer*

BASIC TOOL OUTFIT

with a bit of greater diameter, and the top of the hole is finished with a countersunk bit. A simple table of housing holes for common sizes is given below.

<i>Gauge Number of Screw</i>	<i>Diameter of Thread Hole</i>	<i>Diameter of Clearance Hole</i>
4	$\frac{5}{64}$ in.	$\frac{1}{8}$ in.
5	$\frac{5}{64}$ in.	$\frac{1}{8}$ in.
6	$\frac{5}{64}$ in.	$\frac{6}{32}$ in.
7	$\frac{3}{32}$ in.	$\frac{5}{32}$ in.
8	$\frac{3}{32}$ in.	$\frac{3}{16}$ in.
9	$\frac{1}{8}$ in.	$\frac{3}{16}$ in.
10	$\frac{1}{8}$ in.	$\frac{7}{32}$ in.
11	$\frac{1}{8}$ in.	$\frac{7}{32}$ in.
12	$\frac{1}{8}$ in.	$\frac{1}{4}$ in.

Small screws in softwood may be started with a bradawl, using the blade to cut *across* the grain. Screws should be lubricated before driving them by dipping the thread in mineral oil or tipping them with soap; this preserves the metal against rust and makes the screws much easier to drive home. Brass screws are quite soft and easily snap across the top of the thread when driven into hard wood; drive an iron screw in first, withdraw it and drive home the brass screw. A neat finish can be given to screw heads that show in the finished job by using a screw cup, a form of shaped washer with a countersunk centre (*Fig. 29*).

Other workshop stores and handyman materials are described in the instructional sections dealing with their use.

MAIN SERVICES

Efficiency and maintenance—simple handyman jobs—expert jobs.

WATER. *Cold-water System: Company's main—storage tank—house supply—control valve stopcocks—function and location—layout of system. Hot-water System. Lagging the Water Tank: Boxed encasement—lagging and covers—provision for steam-escape pipe. Lagging Water Pipes: Materials and applications—outside water pipes. Emptying the System: Stopcocks—draining—refilling. Thawing a Frozen Tank: Use of hot cloths. Thawing Frozen Pipes: The danger of using boiling water—first aid for burst pipes—turning off the supply—use of hammers—closing the burst—binding—half strength supply—alternate method. Renewing Tap-washers: Types—stripping a tap—replacement of washers. Replacing a Ball-valve Washer: Procedure—replacement—overflows—repairing a leaky ball. Clearing a Blocked Waste-pipe: Use of plunger—clearing S bends.*

GAS. *Leaks: Method of tracing—temporary repairs—use of test dials. Adjusting Gas Taps: Tightening and loosening. Cleaning a Gas Cooker: Stripping—treatment of parts—use of abrasives—testing a thermostat setting. Room or Space Heating by Gas: Gas fires and radiators—estimating room space. Replacing a Broken Radiant: Disconnecting—stripping—treatment of burner holes—examination of discs—colouring radiants—refitting and adjustment. Gas Water Heaters: Types and function—cleaning. Connecting Tubes: Plug and socket connectors—temporary repairs. Reading a Gas Meter: Consumption dials. Gas Appliances.*

ELECTRICITY. *Types of repairs. Consumption: Unit measurement—how to estimate appliance consumption. Supply and Distribution: Meter and fuse boxes. Repairing a Fuse: Purpose of fuses—switching off current—examination of fuse holders—replacement—overloading and faults. Electric Fires: Types. Electric Water Heaters: Types and use—immersion heaters—storage heaters. Electric Irons. Washing Machines. Food Mixers. Vacuum Cleaners. Refrigerators. Reading an Electric Meter.*

THE smooth running of a home depends to a large extent on the efficiency of the main services and their maintenance. The main services are water, gas and electricity, which in most cases are installed when the house is built. The handyman does not need to be an expert plumber or electrician to be able to carry out simple jobs of maintenance and repairs, but he should have some understanding of the installations and their function, in order to be able to get the most out of them, and to keep them in good repair. Descriptions of the three main services are given in this section, which also includes instructions for carrying out simple repairs that can be tackled by the handyman, and explains how to recognize faults that require the attention of an expert.

WATER

Nothing is more necessary to our home comfort and health than an efficient water supply. Modern water systems, such as are installed in houses for domestic use,

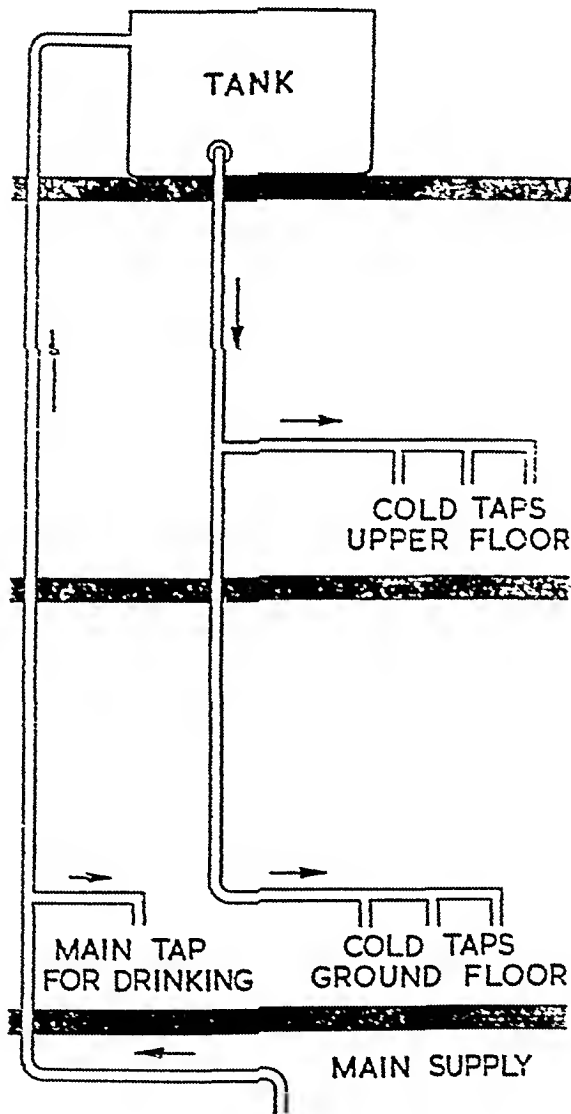


Fig. 31. Typical cold-water system

seldom go wrong; and when they do, it is nearly always for lack of simple maintenance, or the taking of sensible precautions to protect the installation in bad weather. The handyman should make himself fully conversant with the particular system used in his home and keep it in good order. Not only does this ensure

a more comfortable and easily run home, but sensible care will cut down expenses for costly jobs arising from neglect.

Cold-water System: This should be considered as two separate sections; think of the cold water as (A) the service from the company's water main to the storage tank, which is usually installed at the top of the house, and (B) the means by which the water is piped from the tank to the various points of usage in the house. A typical system of supply from the main to a house storage tank is shown in the illustration, *Fig. 31*. The main water pipe runs underground from the company's main to a point under the house. It is then brought up through the floor into the house, and is then taken straight up through the structure into the storage tank. If you find the spot where the pipe enters the house, usually in the kitchen, it is easily traced up through the upper floors to the storage tank. This is a rectangular galvanized container, usually positioned above the ceiling joists of the upper rooms in the loft space under the roof.

The flow of water entering the tank via the pipe from the main is controlled by a ballcock. This is a large hollow, copper ball which floats on the water in the tank, and is fixed to the end of a long lever which in turn operates the control tap. When the water level is lowered (reduced by running one of the house taps) the ball sinks with the surface of the water, depressing the lever, which causes the control tap to open fully. As more water comes into the tank the ball rises again, and automatically the control tap is closed. The pipe bringing the water from the main into the house is known as the supply pipe. Apart from the direct supply to the storage tank, only one pipe leads from the supply pipe; this goes to a tap in the kitchen, and is fitted to ensure that the purest water possible is available for drinking purposes. Any water required for drinking or cooking should always be drawn from this tap, as it is possible for the water from the storage tank to become stale. The storage tank supplies lavatory cisterns and the hot-water system.

The main supply of water into a house may be cut off by means of stopcocks inserted in the supply pipe. The position and number of these stopcocks varies according to the type of building and the locality. The house-wise handyman should make it his business to discover the location of all the stopcocks controlling the main supply of water. The company's stopcock will be found in the pavement outside the house, but this may not always be provided, and in any case is of no real concern to the consumer. The consumer's stopcock is situated just inside the boundary of the property. A third stopcock should be found just inside the house. These three form the ideal arrangement, but in some houses it may be that one or other has been omitted, especially in cases where a large house has been rebuilt into two. It is most important to know the location of all stopcocks, and to ensure that they can be got at quickly in case of emergency. This is an easy matter in a house; people living in flats should make enquiries and arrangements for access to stopcocks which may be situated in other people's property. The outside stopcock will be in a small underground chamber (*Fig. 32*) which should

have a metal cover. Open this cover at regular periods, keep the chamber clean and the hinges on the lid oiled. Always keep the cover clear so that it can be opened quickly at all times. This stopcock may be fitted with an ordinary tap head, or it may have a square head (*Fig. 32*), in which case a special water key will be required to open and close it. Make sure this key is in an easily accessible place and that it is clearly labelled. Should you be away at any time, leaving the house empty, arrange that a neighbour or relative knows where to find the stopcock key. Whatever the shape of the top of the cock, it should be turned clockwise to shut off the water supply.

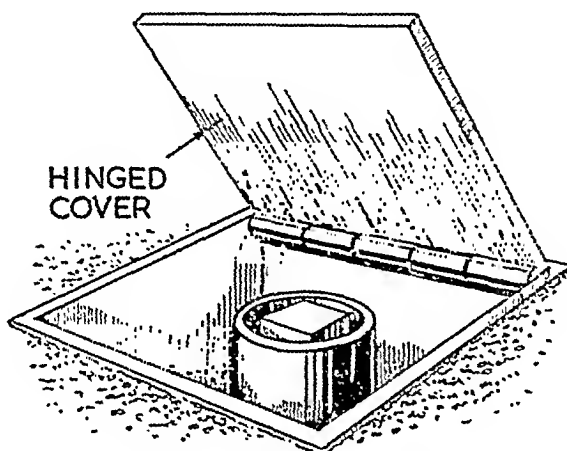


Fig. 32. Outside stopcock

The indoor stopcock is the most important one to the consumer. It will usually be found in the kitchen just under the sink, above where the pipe enters the house, and this is usually fitted with a tap head. It is as well to make sure that everyone knows where the internal stopcock is, and which way to turn it, also that heavy furniture is not placed in front of it.

There is another very important stopcock, and this is situated on the pipe running from the storage tank to the various points of the house. It is generally fitted just outside the storage tank, but in some houses it may be found below the ceiling in a linen cupboard or in the bathroom. Sometimes this important stopcock is omitted from a coldwater system; if this is found to be so, it is wise to have one fitted. In the event of a burst, closing the other stopcocks will prevent water entering the house through the main supply pipe, but this outlet stopcock is the only one which will prevent the contents of the storage tank leaking through a burst pipe. In an emergency, when this stopcock is not fitted, the water can be stopped by plugging the pipe from the inside of the tank. *Fig. 33* shows how the water outlet supply runs through pipes from the storage tank to the various parts of the house. The actual plan of the pipes will of course vary from house to house;

the illustration shows a typical system. After studying *Fig. 33* you should be able to trace the outlet pipes in your own house from the tank downwards. It is a wise precaution to make yourself familiar with these pipes and their runs; in the case of a burst pipe precious minutes can be saved if you know where the pipes are. The storage tank and system may seem at first unnecessary, but a little consideration will soon show that there are several reasons why it would not be advisable to run all the taps off the main pipe. The chief danger would be to the hot-water system; if the water became cut off from the main, the hot-water boiler would soon fill with steam and burst. With a storage tank installed there is enough water

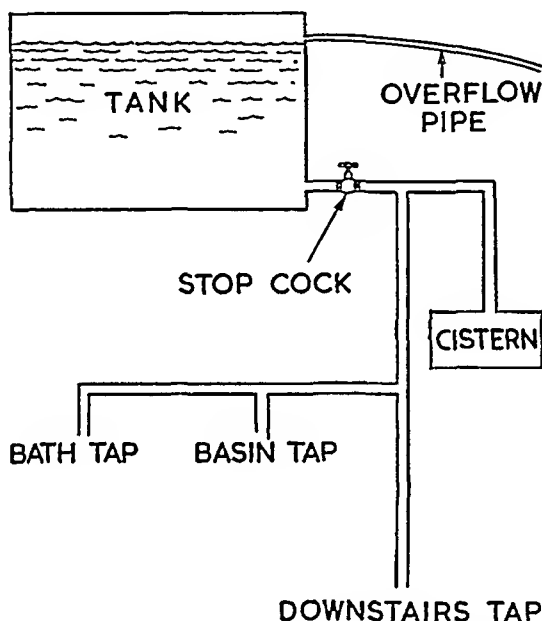


Fig. 33. Typical cold-water outlet system

in hand for the boiler to draw on until the supply is reconnected or the fire taken out. Again the water from the mains enters the house at a very great pressure, and if used for all the taps, would prove a great strain on the piping in the house. The water flow from the tank is at a much reduced pressure. Also the amount of water stored is sufficient to maintain a supply to lavatory cisterns should the main supply be cut off.

Normally the storage tank will be found in the roof-space, but in some flats and modern houses it is often placed in the bathroom or airing cupboard above the hot-water tank. This has the great advantage of keeping the storage tank from freezing in cold weather.

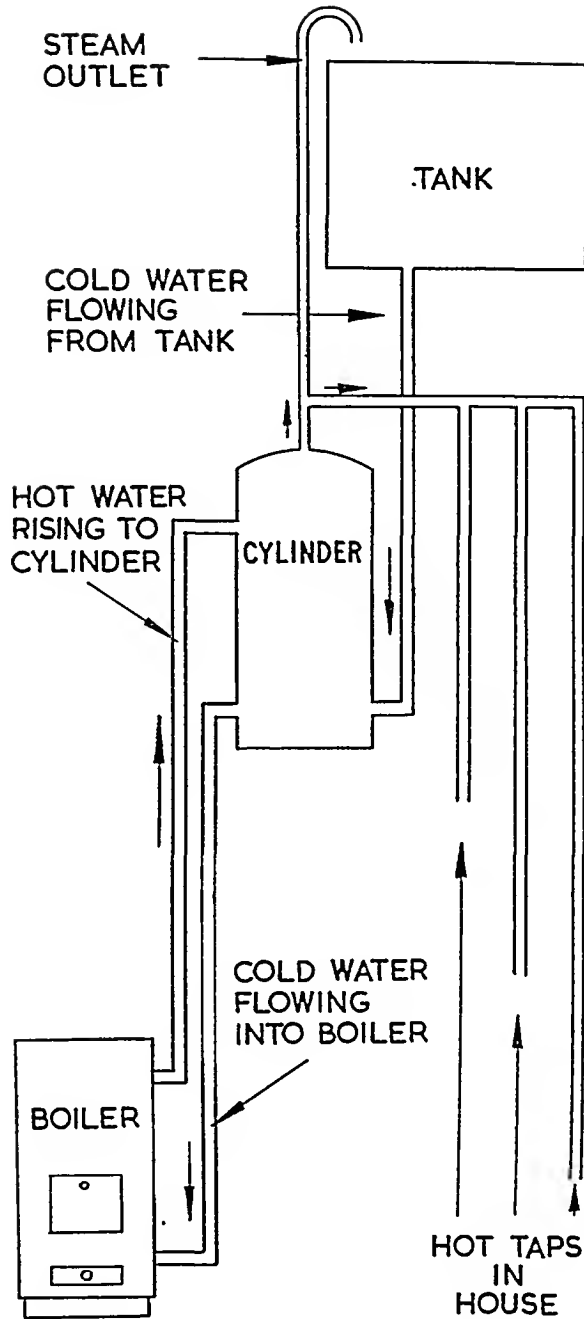


Fig. 34. Hot-water system

Hot-water System: There are many ways of heating water for household supply. The water may be heated in a back boiler fitted at the back of one of the fireplaces; it may be heated by an immersion heater running on the electricity, by gas or by

a boiler fire. Whatever the method of heating the water the system of supply is very much the same for all types of dwelling-houses, with an automatic circulating action as illustrated in *Fig. 34*. When water is heated in a container—in this case a boiler—the hot water rises from the boiler to the top of the cylinder and the cold water in the bottom of the cylinder flows into the boiler. Normally a hot-water system has three parts, boiler, cylinder and supply tank. The diagram in *Fig. 34* shows how these are arranged in the house. The cold water from the storage tank at the top of the house flows down into the cylinder, then down again into the boiler, is heated by one of several different methods, and rises when hot back into the cylinder, the circulating action being repeated as the water in the boiler is heated sufficiently to cause it to enter the cylinder. From there it is drawn off by the several hot taps in the house. From the top of the tank runs a steam outlet, so that should the water become too hot the steam is drawn off from the cylinder and taken back into the cold-water tank.

Lagging the Water Tank: If the storage tank is in the roof-space, it is essential that it is protected against frost. The best method of doing this is to enclose it in a wooden box, leaving a space between the covering and the sides of the tank, which can be filled with lagging. The construction of a simple encasement box for a water storage tank is illustrated in *Fig. 35*. The framework consists of 2-in. by 1-in. softwood battens, and the covering material can be $\frac{1}{8}$ -in. thick hardboard, or 4-in. by $\frac{1}{2}$ -in. tongued-and-grooved matchboards. The framework should be fitted to the joists upon which the storage tank rests in the roof-space, but before the framework is fitted to the joists, the spaces between the joists under the tank should be filled with an insulating material; this may be crumpled newspapers, glass wool or vermiculite granules, which are obtainable from local builders' merchants. The box should be constructed to allow a space of at least 2 in. all round the outside of the tank and the inside of the encasement covering material. This space should be filled with any of the insulating materials mentioned above. The cover of the box, made from the same materials as the box, should be made to fit snugly over the sides of the box (*Fig. 35*), and the main function of the cover is to prevent dust settling on the water in the tank. The cover should be so constructed that it does not interfere with the movement of the ball-cock lever, also provision must be made for the steam-escape pipe which acts as a safety device from the hot-water cylinder. The steam pipe has a curved top projecting over the tank (*Fig. 35*). If the hot-water system becomes too hot, pressure on the cylinder is relieved by the escape of steam through this pipe. The steam condenses in the cooler air over the storage tank and the surplus moisture drips down into the water in the tank. A simple form of provision for this factor is illustrated in *Fig. 35* which shows how a metal or (preferably) a plastic funnel can be placed in a hole drilled in the cover under the steam-escape pipe.

Alternatively the sides of the tank may be lagged with hair felt, and fitted with a separate cover. The felt is available in wide strips; it is simply wound round

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MAIN SERVICES

the tank and held in place with lengths of copper wire, the ends of which should be twisted together with a pair of pliers. Copper wire, which is nonrusting, should be used in preference to iron or steel wire. The cover of the lagged tank should

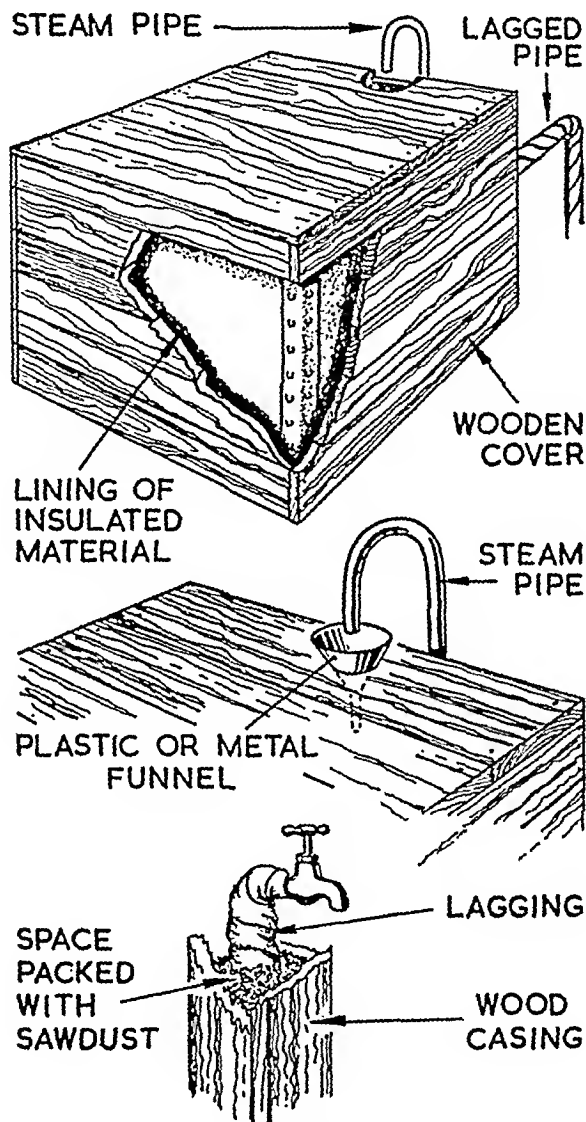


Fig. 35. Lagging tanks and pipes

be made in the same way as the cover for the boxed tank, to allow free movement of the ballcock lever, and to make provision for the steam escape pipe. The pipes to and from the tank also require lagging if full protection against bursts is to be given. By lagging tank and pipes, not only are they protected against freezing in

the winter, but the water is kept cool in the summer. If the hot-water pipes and tank are lagged this keeps the temperature of the water up and saves on fuel bills.

Lagging Water Pipes: There are various ways of lagging pipes, but the easiest is to wind lengths of hair felt round and round the pipe, binding it tightly with string at intervals. The felt can be bought in rolls ready for the job, and as this hair felt has been treated to make it vermin resistant it has the advantage over newspaper or the use of rags, which may encourage vermin. Commence by wrapping one end of the felt round the pipe, and tying it securely with string. Continue winding, overlapping the felt each time, and pulling it tight. Bind and tie string round the lagging about every 12 in. along the pipe. Several thicknesses of newspaper can be used for this job, or old rags, but these substitute materials are not so neat looking and do have the disadvantage of attracting vermin. If there are any outside water pipes these should be protected against frost as illustrated in *Fig. 35*. The pipe should be lagged with hair felt and boxed in with a space of about 2 in. between lagging and box. This space should be packed with sawdust or vermiculite granules.

Emptying the System: If the house is to be left empty during a holiday, in cold weather, the only way to be really safe from bursts is to empty the tank. This is done by turning off the supply of water from the consumer's stopcock, then turn on the taps and let them run dry. Before doing this, take the precaution of turning off all electricity and gas water heaters and making sure that all boiler fires are out. On your return it is important to refill the tank and pipes without airlocks developing. To do this, turn all taps on, then turn on the supply at the consumer's stopcock. Wait until the water flows quite freely from the lowest tap (not the main drinking tap) in the house. When the lowest tap flows quite freely, turn it off, go to the next highest tap and turn it off, and so on until you reach the highest tap. Do not light the boiler fire or turn on gas or electric heaters until you are sure the water system is fully charged with water right through the house.

Thawing a Frozen Tank: If, even after taking precautions against frost, you find you are landed with a frozen tank, it can usually be thawed easily by pouring boiling water into the tank. This will melt the ice so that the ballcock should move freely; if the ballcock is frozen solid, wring out some cloths in very hot water and wrap round the valve until it is freed; never be tempted to apply any form of heat from a flame to the ballcock valve as this may damage it beyond repair.

Thawing Frozen Pipes: The best method of thawing pipes is to apply cloths wrung out in *very* hot water round the parts which are frozen. If water runs from some pipes and not from others, it is quite a simple matter to find out which length of pipe is frozen. If all the taps are dry, first apply the cloths to the parts which are in particularly cold spots in the house. If this fails to get the water flowing again, apply cloths all along the pipes, commencing at a tap and working toward the supply. Frozen waste pipes should be treated in the same way. Never pour boiling water into a porcelain basin or sink in an effort to thaw a waste pipe.

The boiling water is almost sure to crack the cold porcelain, and will probably fail to melt the ice in the drain side of the pipe.

First Aid for Burst Pipes: When water in a metal pipe freezes it expands with splitting force to crack the pipe. While water remains frozen the burst is not apparent; as soon as the water thaws—by the application of hot cloths, or by a rise in temperature—the water is forced through the split. If this happens prompt action is necessary to prevent damage to walls, floors and ceilings. First, place a bucket or bath in position to catch the leaking water; turn the water off at the main—either at the consumer's outside stopcock, or at the stopcock inside

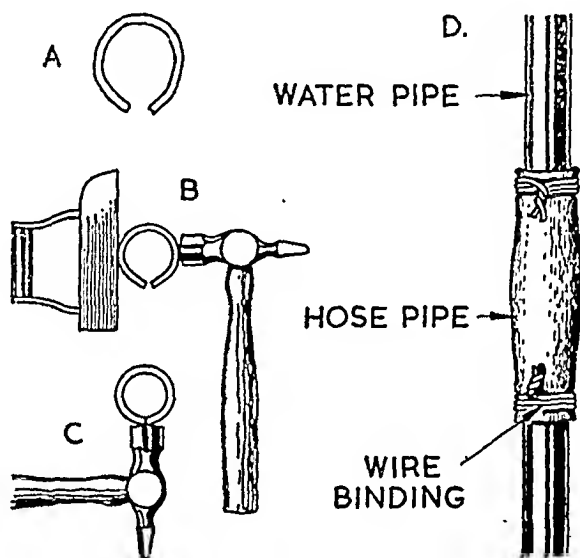


Fig. 36. Temporary repair of burst pipe

the house. If the leak is in the main supply pipe, closing the main stopcock will cut off the supply of water. If the burst pipe is one that is fed from the storage tank it will be necessary to stop the supply from the tank by turning off the stopcock which is located in the main outlet pipe from the storage tank. If this cock is not included in your system the outflow of water should be cut by plugging the outlet pipe inside the storage tank, at the base of one of the sides. A shaped wooden peg is the best plug for this outlet; in an emergency a cloth tightly screwed may be pushed into the end of the pipe. This is rather a messy job, but stopping the flow from the tank will cut the water supply to the burst pipe, thus saving a considerable amount of trouble and possible damage to walls, floors and furniture.

If the burst should be in a hot-water pipe, the consumer's stopcock should be closed, also the stopcock controlling the outflow from the storage tank. The boiler

fire should be raked out—or gas or electric water heater turned off. The hot-water taps fed from the cylinder should be opened. Having stopped the flow of water the burst pipe must be renewed. This is a job for a plumber, not for the handyman. You may assume that a burst pipe in your house is not a single local occurrence, and that at this time the plumbers will be exceptionally busy. It may be several days before the pipe can be renewed, but it is possible for the handyman to carry out a simple form of first aid so that the water system can function until the main repair can be carried out. You will need two hammers for the temporary repair, or a hammer and some solid object to act as an anvil. The

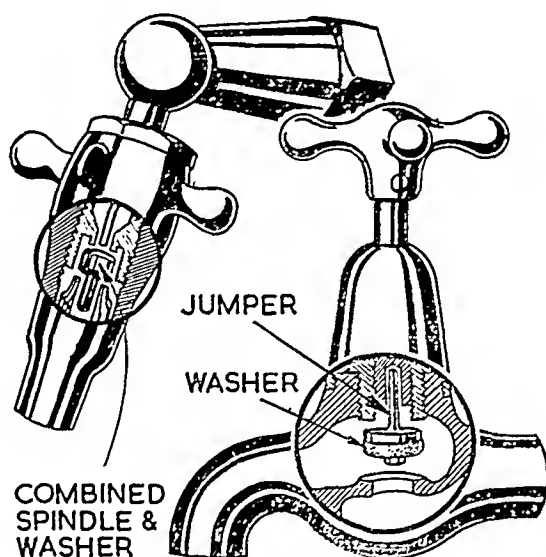


Fig. 37. Tap-washers

shape of a burst pipe is shown in *Fig. 36(a)*. To carry out the temporary repair, place one hammer or the anvil object at one side of the pipe on a level with the burst, hammer the other side of the burst pipe, *Fig. 36(b)*, using a good amount of force. Reverse the positions of anvil and hammer, and again hammer the pipe to close the lips of the split. Continue until the lips are as fully closed as hammering at the sides can force them, then hammer the front of the bulge, *Fig. 36(c)*. To finish the job, wrap adhesive cellophane tape tightly round the pipe over the repair and for a distance of about two inches each side of the burst; follow this operation by winding insulating tape over the first binding. The water may then be turned on at half pressure, but the water heater should not be relit until the pipe has been replaced.

There is an alternative method of temporarily repairing a burst pipe, see

Fig. 36(d). A section of the pipe at the burst should be removed by cutting through the pipe with a hacksaw; a short length of hosepipe should be fitted to overlap the cut ends of the pipe and the hose bound tightly round at both ends with wire. With both types of first-aid repair, water should only be turned on at half pressure until the burst pipe can be renewed. A burst pipe should rarely happen if sensible anti-frost precautions are taken.

Renewing Tap-washers: Dripping taps not only waste water but cause stains to appear on sinks and baths, and are most annoying to the people living in the house, yet a new washer is very easily fitted. Some water companies will fit new washers free of charge, but if your local company does not provide this service, tackle the job yourself as soon as the pipe *starts* to drip.

There are two kinds of washers—one for hot taps and one for cold taps—be sure that you obtain the right one. Or your ironmonger will probably stock the more modern universal type, which will do for either. The washers for cold taps are made from rubber or leather, and those for hot-water taps from fibre or a rubberlike composition. Washers are very inexpensive, and it is as well to have one each of several sizes available. The tools required are a pair of pliers and an adjustable spanner. The taps may be one of several shapes. Two shapes are shown sectionally in *Fig. 37*; the right-hand drawing shows the most usual type of tap, and the left-hand one is a more modern type. Whatever shape your tap may be it will work on the principle of one of these types. If the dripping tap is on the mains pipe, it will be necessary to turn off the water at the consumer's stopcock. If the water comes from the storage tank, the supply of water should be cut off as explained above for repairing a burst pipe. Open the tap and unscrew the top. This should not be screwed on tighter than is possible by hand, as if you find it necessary to use a wrench to remove the top of the tap, the metal may easily be marked. When you do find it necessary to use a wrench, place a piece of cloth over the jaws of the wrench to protect the metal finish of the tap. Next remove the nut; modern taps have a right-hand thread, but some of the very old ones have a left-hand screw. If any difficulty is experienced in removing the casing, don't try to force it, but try turning it in the opposite direction. Removing the cover of the tap reveals the 'jumper' (*Fig. 37*); the washer is held on the jumper plate by means of a small nut. In some taps the jumper is loose and will come out as the top of the tap is unscrewed. Other types may have a pin passing through a hole in the spindle, while yet a third type of jumper is a press fit, and the nut must be gripped by pliers and pulled to remove the jumper. Loosen the nut, being careful in handling it, so as not to damage the stem of the washer plate. Remove the old washer and fit the new one on. The washer should be the same size as the washer plate. The nut should now be tightened and the jumper refitted to the spindle and the top of the tap replaced. The washering systems described above are the usual ones found in most dwelling-houses, but there is another method that may be encountered. This is illustrated in *Fig. 37*, and consists of

a combined spindle and dome-shaped washer. Replacement is simple; the casing is removed, the old spindle-washer removed and a new one inserted.

Replacing a Ball-valve Washer: Ball valves are used to control the supply of water to the storage tank (*Fig. 31*), and are used in every flushing cistern. Like other valves and taps, ball valves are fitted with washers and as these become worn the valve will leak, causing water to enter the tank, although the arm lever is raised to its highest level and the valve is closed. If the valve leaks it will be necessary

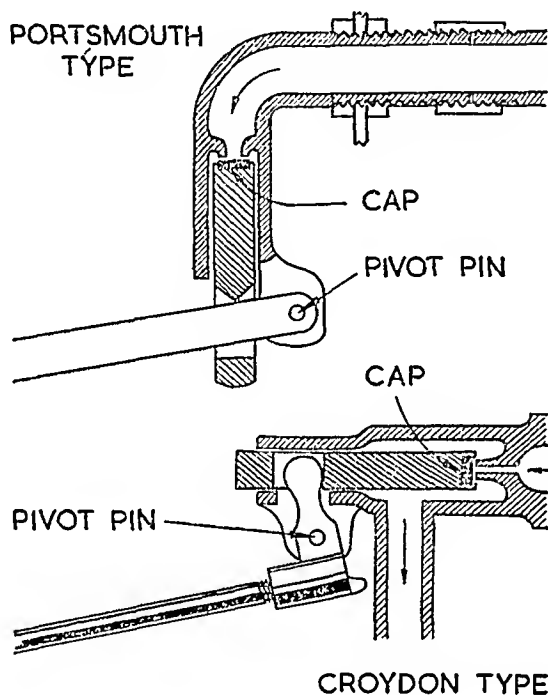


Fig. 38. Two types of ball valve

to renew the washer. *Fig. 38* shows a typical ball valve of the portsmouth type, and also a croydon type ball valve. The chief difference between the two is that the plug works up and down in the portsmouth, and across in the croydon. To renew a ball-valve washer, turn off the water and withdraw the pivot pin with a pair of pliers. The removal of the pivot pin will release the lever and allow the plug to drop out. When removing the pin hold the lever and the plug, or they may fall into the tank or the cistern. Unscrew the cap with a pair of grips. The cap is rather thin and quite easy to bend, so it must be treated gently, exerting no more pressure than is absolutely necessary. Remove the washer, and clean out the space into which it fits, then fit the new washer, which must fit exactly. These

washers may be purchased from an ironmonger, and are cut from hard rubber. It is false economy to try and cut a washer yourself; they must be quite even and just the right thickness. Having fitted the washer re-assemble the ball valve. In an emergency the old washer may be reversed to stem a leak from the valve.

It may be that the fault is not in the washer. The first sign of apparent trouble in the ball valve is water continually dripping from the overflow pipe outside the building. When this is noticed, it is as well to test the washer first as this is the most likely cause. Lift the ball and the lever up very gently; if this causes the water to stop flowing into the tank, a worn washer is not the cause of the overflow. The lever is made of soft metal, and the continual movement of the ball in following the changing level of the water may have bent the lever very slightly. This

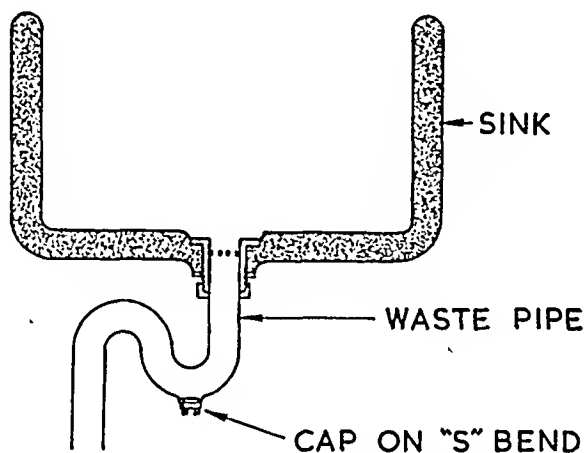


Fig. 39. Diagram of waste-pipe

is easily put right; grasp the lever close up against the ball, and with the other hand at the other end of the lever, bend the ball end down very slightly. Release the lever to check if the rising lever raises the ball to stop the flow. The water level in the storage tank should be just below the overflow pipe.

Another cause of overflowing may be due to a leak in the ball itself. The ball, which is hollow, is screwed to the end of the lever. Place a piece of wood across the top of the tank and tie the lever to the wood to close the valve; unscrew the ball and shake it to see if there is any water inside; if water has entered the ball, this must have affected its buoyancy, thus failing to raise the lever sufficiently to close the valve fully. A new ball is inexpensive, easy to replace and to obtain; in most cases it will be found quite a simple job to repair the old ball. Cover the ball with hot water—the heat will cause the air in the ball to expand, and it will press out at the leak, showing tiny bubbles in the water. Make a scratch on the ball, where the air is seen to be coming out, and remove the ball from the hot water.

To remove the water that has collected in the ball, punch a *small* hole at the spot where the leak is. Shake out as much water as possible. With this done hold the ball over a gas flame to dry it, but do not overheat the ball; when steam ceases to emerge from the hole, scrape the metal round the hole clean and bright and solder the leak. The ball should be tested by leaving it in a bucket of water for an hour or so before screwing it back into position.

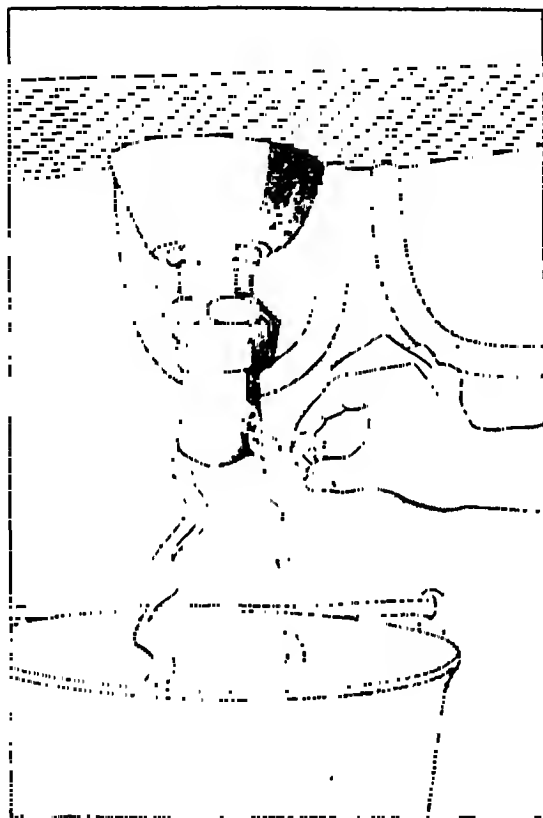


Fig. 40. Clearing an S-bend. The picture shows a modern type of bend with clearing caps located in the sides of the 'S'

Clearing a Blocked Waste-pipe: Stoppages in sinks are usually caused by an accumulation of grease and particles of food. Much of this can be removed by the use of hot water and ordinary kitchen soda. If the soda solution fails to clear the sink pipe, fill the sink with water to within a few inches of the top and use a suction cup to try and force the pipe clear. If this also fails to clear the pipe, the cap on the bottom of the 'S' bend (see *Fig. 39*) will have to be unscrewed and the

pipe cleared from there. Place a bucket under the pipe, and if the water in the sink and pipe is likely to be more than will fill one bucket have a second one ready before starting. A stopping in a wash basin or bath should be dealt with in the same way.

Modern waste-pipes are fitted with two screw caps, one either side of the lowest part of the bend (*Fig. 40*); older types of waste-pipes are fitted with a single cap under the bend. With both types the cap should be unscrewed carefully, exerting only the minimum amount of pressure necessary to loosen the thread. If the cap is wrenched with force this may damage the seating and the pipe, especially if it is a lead one. The 'S' bend caps are fitted with two flanges; place the edge of a chisel, or other flat-bladed tool, between the flanges and exert gentle pressure. Keep a bucket under the bend and loosen and remove any clogged rubbish inside the bend. When replacing the caps screw them firmly into place only exerting sufficient pressure to seal the opening.

G A S

With the exception of cleaning and small adjustments there is not very much the handyman can do towards maintaining the gas equipment in the home. However, he should know what to do if a leak is detected in the home. Any repairs to gas pipes should be considered as temporary and the Gas Board notified.

Leaks: Any suspicious smell of gas in a house should be treated with concern and a search made to find a leak immediately. It may be that a tap has been knocked on accidentally, or that the flame of a turned-on jet has blown out. Or one of the pipes may have sprung a leak. The first step is to turn off the gas at the meter by turning the control cock. Then go round the house, opening the windows and doors, and making sure that all the appliances are turned off. If the smell is very strong it would be wise to extinguish any open fires or lights and avoid smoking, but this is hardly necessary for a slight smell of gas. In most cases the leak can be located by smell, but sometimes the escaping gas may travel along and through flooring, making the leak difficult to locate by the sense of smell; a hissing sound, which will help to locate the leak, should be listened for. If you are not able to locate the leak by smelling or listening it is advisable to get in touch with the local Gas Company immediately. *Never* look for a leak by running a naked flame along a pipe. If you are unable to locate the leak run a piece of soap dipped in water along the pipe; bubbles will form where the gas is escaping. If the leak is small, stop it with putty, or a layer of wet soap, tightly bound over with insulating tape. Then ask the Gas Company to call and repair the pipe. If the leak is large, keep the gas turned off until an experienced plumber can tackle it.

If the leak cannot be found, yet the smell persists, make the following test. Turn off all appliances and pilot lights throughout the house, then turn the gas full on at the control cock and watch the meter dials. The meter has a set of small

dials, with one dial above the others. This dial is the test dial. Mark the position of the pointer of this test dial with a piece of chalk, or by sticking a small piece of paper against it on the glass. Leave the gas turned on for some minutes and re-examine the test dial. If the pointer hasn't moved there is no gas escape. If the pointer has moved, turn off the supply at the main and notify the Gas Company. If after testing and finding no leak there is still a smell of gas, you should still notify the Company, as the smell may be entering the house from the street mains.

Adjusting Gas Taps: The ordinary brass gas tap, controlling the feed to gas-fires and other appliances, is quite easy to adjust if it works loose, but the taps on most

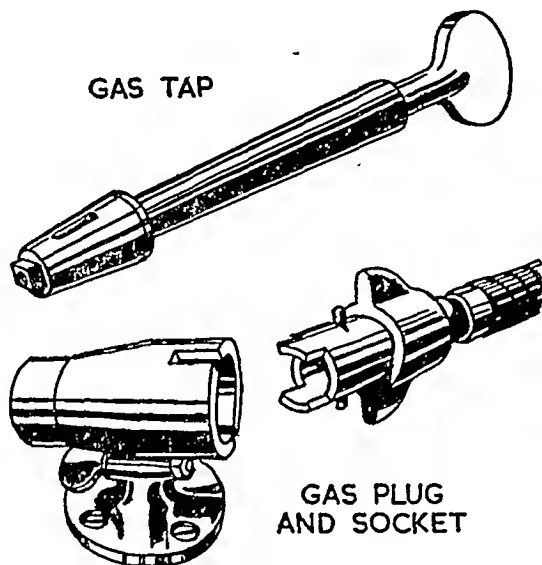


Fig. 41.

types of modern stoves and equipment are of intricate construction which requires special tools and expert adjustment.

If one of the ordinary brass taps is too tight, look for a small nut at the bottom of the tap (*Fig. 41*) and give it a very slight turn with a spanner; not more than about a quarter turn is ample. A loose tap may be adjusted by tightening the nut. A gas tap should turn without difficulty, but should not be loose enough to be knocked on accidentally.

Cleaning a Gas Cooker: New cookers are all supplied with detailed instructions for cleaning them, but the older types are not so easily cleaned, and may have been neglected by previous owners. In this case the cooker should be stripped down as far as possible and each part thoroughly cleaned. Before removing any part of the cooker, take careful note of its arrangement to make sure you will be

able to re-assemble the parts. Detach the burners and cover them with boiling water to which should be added a good half pound of washing-soda to every gallon of water. Leave to soak or, if the stove has been very badly neglected, leave one burner in and boil the others in the soda solution. Boil the used burner when the others are clean. Paint all other parts of the stove with a proprietary cleanser, according to the directions on the tin. Most of these cleansers are caustic, and care should be taken in handling them.

When the burners have soaked, pour away the soda solution and cover them with hot water to which has been added some detergent or soap powder. Scrub each burner until clean with a stiff brush and wire wool. Clean any grease out of the holes with a pipe-cleaner. Dry each one well and polish with old newspaper. Finish by wiping burners with a cloth damped in a solution of equal parts paraffin and turpentine.

Wipe over and if necessary scrub with wire wool all the bars of the top of the cooker. Wipe dry and rub over with turpentine and paraffin solution. Before replacing the burners, examine the supply nozzles and if necessary clean out with a piece of wire, but take care not to enlarge the orifice. Clean the tray and replace the burners.

Wash every trace of the proprietary cleanser from the oven and dry with clean newspapers. Rub the oven racks with wire wool, and the turpentine solution. Lastly wipe clean the drip tray at the bottom of the oven. Dry and try each tap separately, to ensure that the burners are correctly connected.

Cleaning is much easier, when dealing with one of the new enamelled cookers. In a modern cooker it will be found that nearly all parts are removable and are easy to re-assemble. The finishing enamels used are durable and stain-resisting; cleansers containing coarse abrasives should not be used. Avoid the use of steel wool.

Commence by taking out all the removable parts of the hot plates, pan supports, hotplate top, burners, grill cover and grill frets; rub each over with a pad of newspaper to remove grease. Place parts in hot soapy water to soak for a short while, then rinse in clean hot water and dry each part thoroughly. Remove the oven shelves, grids and burners and clean them in the same way. The clip on the oven flue grill, mounted on the back plate, is also removable for cleaning. The oven walls and outside of the cooker finished in enamel should require nothing more than wiping over with a clean hot cloth and drying with a soft cloth. If spilled food has been allowed to burn on the stove, use a very fine abrasive or soap pad. If there is a very thick deposit of burned food, damp the deposit and scrape with a piece of wood, but never with a knife or metal object likely to scratch the enamel.

If the gas stove is of the type which has a heat-regulating dial, the thermostat rod which runs along the top of the oven should be cleaned but it must not be moved. Should you suspect that the thermostat is not in order, test as follows: set the dial at a medium heat, say 7 or 8, light the oven, close the oven door, wait 15

to 20 minutes, open the oven door and turn the dial to its lowest setting. If the flames decrease in size to the merest glimmer the thermostat is correctly adjusted, but if the flames do not reduce, or if they go out altogether, request your local Gas Company to adjust the setting.

Room or Space Heating by Gas: Gas fires and heaters provide a completely abour-saving method of heating a home, provided they are carefully maintained and used, but are not always *completely* safe where there are young children. Many types of fires and heaters are now available. Where a permanent fire is needed panel heaters are perhaps best, and these must be fixed with a suitable flue. It is possible to purchase portable gas-fires, but these are only suitable for occasional use. If a system of gas heating is going to be used in the house, it is best to have normal gas-fires each fitted with a flue. Very popular are the modern gas radiators and convector heaters; to be really effective these should be kept running con-

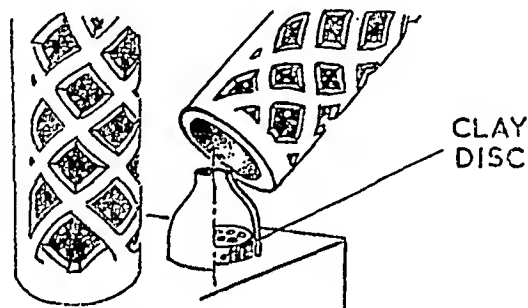


Fig. 42. Replacing broken radiant

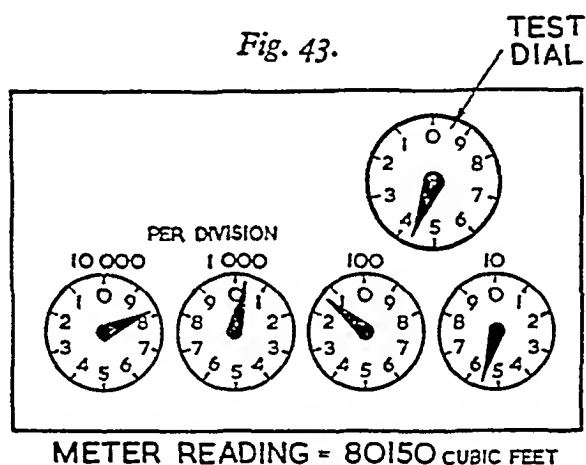
tinually, as they are not constructed to give a quick heat. Fitted with a thermostatic control, they make a good background heat in a large room, where a small coal fire is used for only part of the day. When buying this type of gas heater, it is important to have one the correct size for the room. Before visiting the gas showrooms find out the cubic feet of space to be heated; the salesman will then be able to give advice on the size of heater required.

Replacing a Broken Radiant: A gas-fire with a broken radiant is not only inefficient and fuel-wasting, but can also be dangerous. New radiants are easy to obtain; always insist on the radiants made for the particular type of fire. Turn off the gas at the meter cock and disconnect the supply at the union with a small spanner. Lift the fire away from the hearth and remove any dirt or dust which may have come down the chimney. Make no attempt to remove built-in fires, and take care that none of the cement luting is disturbed—this controls the draught to the fire. Remove all the radiants, taking care not to break them. Clean the burner holes and dust them with a pipe-cleaner; cover the burner holes with rag or paper and brush out any dust and dirt which collects under the canopy, in the flue nozzle

MAIN SERVICES

and round the burners. A vacuum cleaner is excellent for this. Examine the clay discs or gauzes on each burner (*Fig. 42*) and replace any that are broken. A broken disc can cause a gas-fire to pop when lit, or when turned out. Crush the broken radiants and mix them with water. Paint the firebrick at the back of the fire and the radiants with the wash, the new ones as well as the old unbroken ones. Replace and refit the fire, then carefully replace each radiant. Test the fire by turning on the gas and lighting the fire, examine each radiant to ensure that all are equally incandescent, and adjust the tap so that flames do not project above the top of the radiants.

Gas Water Heaters: There are two main types of gas water heaters—storage heaters and instantaneous or geyser types. Both are good for providing hot water for a small or medium-sized house, either as supplementary heaters to a solid fuel type boiler or as the sole means of supplying hot water.



Storage heaters provide an adequate supply of really hot water for a small family, but to be really economical they need to be near the bath or sink, and it is necessary to give them time to heat up again between baths. The circulators (the equivalent to an electric immersion heater) are connected with the main boiler so that they can be used either to supplement the main boiler, or independently in the summer months.

The geyser type of heater heats the water as it flows; these are very useful in the kitchen as it is possible to have hot water on tap all the time. Small-sized sink heaters give boiling water and require no flues; the modern types have a pilot jet so that the heater lights at the turn of a handle. The larger types have multipoints, which supply hot water to the various taps in the house; they are very compact and economical to use, but they must be fixed with a proper flue.

Gas water heaters are usually serviced regularly by the local Gas Company for a small charge, but the householder can do much to keep them working efficiently

by occasionally cleaning the flue pipes and burners. If the burner in the heater cannot be removed, remember to cover it with rags while sweeping the flues. The burner is best cleaned with a wet brush. If possible hold the burner under a running tap so that it is thoroughly cleansed. Some heaters are fixed so that there is a flue discharging to the outer air, in which case the exit must be kept brushed clean.

Connecting Tubes: There are two types of connecting tubes between gas-fires and gas-rings to the supply—push-on rubber tubes, and modern ones with gas plug and socket (*Fig. 41*). With old push-on types there is a danger of gas escaping, and it is well worth the cost and bother of fixing the new type with socket and plug connectors. When the plug is pushed into the socket, the gas supply is released; when the plug is removed, the gas supply is automatically turned off. Always make certain that the flexible tubes are not leaky. Leaks in tubes can be repaired with insulating tape, but this should only be regarded as a temporary measure, a new tube should be obtained as soon as possible.

Reading a Gas Meter: Every handyman should be able to read a gas meter, to be able to find the consumption of a single appliance, or for checking week-by-week usage. Quarterly-payment meters are fitted with a series of dials; the exact number of dials may vary from three to five. *Fig. 43* shows a four-dial window. However many the dials, each is marked with its value; in *Fig. 43* the dials shown—reading from left to right—indicate 10,000, 1,000, 100 and 10 cubic feet. Consumption is indicated by the position of the needle on each dial and an example reading is given in *Fig. 43*. The total of the last reading taken should be deducted from the new total to determine the consumption between last and present readings.

Gas Appliances: Space does not permit a description of all types of gas appliance. These range from refrigerators to gas poker and include gas-irons, heaters of different kinds and cookers of different types and sizes. Before purchasing any type of appliance, check with the local Gas Company to discover its suitability for your type of supply and any regulations governing the fitting of different appliances.

ELECTRICITY

The inexperienced handyman is not advised to make additions to the existing service, or to carry out repairs or alterations, which he does not fully understand. There are certain types of repairs that can be carried out by the home handyman, and these are described in the following paragraphs, which include descriptions of some types of appliances.

Consumption: The universal system of measuring the consumption of electricity is applicable to any kind of appliance; this is measured in terms of watts and is based on a unit hour of 1,000 watts. The wattage of the appliance is marked on it, which makes it a very simple matter to measure the consumption of each and every appliance. For instance, a 100-watt electric lamp will consume one unit of electricity (1,000 watts) in ten hours of use; a 500-watt electric fire will consume

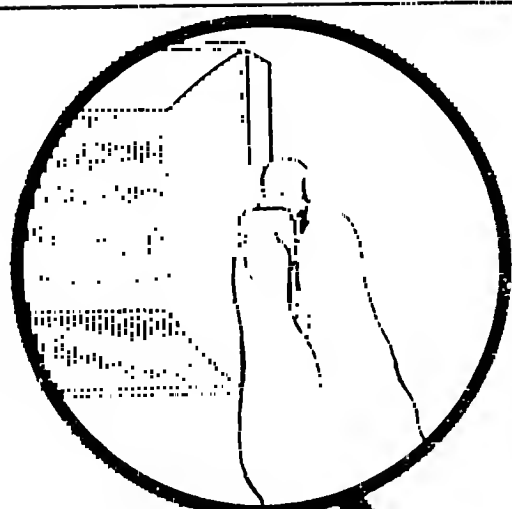
one unit in two hours of use. Electricity is only consumed when current is passing through the appliance, not when it is switched off—and in the case of appliances that can be partly switched on the consumption is only that of the part in use. A two-bar fire with a wattage of 1,000 would consume one unit with both bars burning for one hour. With only one bar switched on it would only consume one unit in two hours.

Supply and Distribution: Electricity is supplied to a house by a cable which is connected to the company's mains. The cable runs into a main fuse-box, then to the consumer's meter, and from the meter into a series of consumer's fuse-boxes, one of which is provided for every circuit. A circuit is the wiring feeding a series of points; in a small house the upstairs and downstairs points are each fed by their own circuit; a large house may have more than two circuits, each feeding a group of points in one part of the house. A single circuit may feed four or five lighting points in several rooms, or it may feed two or three power points. Power points are connected to completely different circuits from those of lighting points. Each separate circuit of the house supply is connected through a fuse-box, consisting of two fuses, one for each wire of the circuit; these are the consumer's fuse-boxes. The Company's fuse-box may be identified by a leaden tag sealing a wire through the lid and case of the box. The Company's box should never be opened by the consumer; the circuit boxes are for the consumer's use when replacing a blown fuse. In most houses the circuit box, or boxes, is placed near the meter; in some cases the circuit fuse-boxes may be inserted at different points through the house; one group on the ground floor, for the circuits feeding the points on that floor, and another group on a landing feeding points of upstairs rooms.

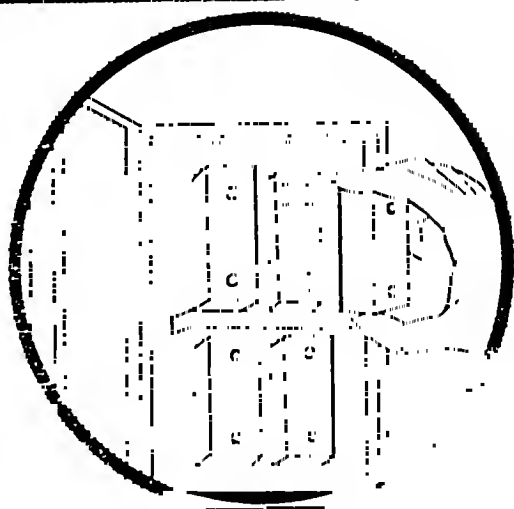
Repairing a Fuse: Fuses are safety devices inserted in electrical lighting, heating and power circuits. When a circuit becomes overloaded or shorted, the fuse wire, which is thinner and softer than the main circuit wires, heats and melts, automatically cutting off the electrical supply to the circuit affected—thus minimizing risks of fire and shock. Repair necessities are a card of fuse wire and a small insulated screwdriver; these should be stored near the fuse-boxes together with a torch or candles and matches.

Before opening the fuse-box, the current *must* be switched off at the main. Examine all the fuses in the box; the burnt one can usually be identified by a sooty smudge on the white porcelain holder. Loosen the screws in the holder (*Fig. 44*) and remove every piece of the old wire; wipe off the sooty deposit before replacing burnt wire with a new piece of *correct* strength. The amperage is usually stamped on the side of the porcelain holder—5 amp. for lighting, 10 amp. for heating, and 15 amp. for power. It is dangerous to use wire stronger than the specified amperage, and only fuse wire should be used—not hairpins or odd bits of any old wire.

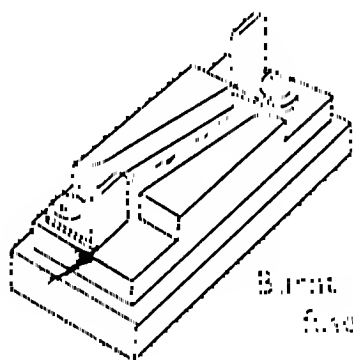
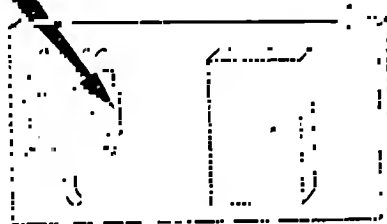
Coil the ends of the new length of wire round the securing screws in the porcelain holder and under the washers, snip off the surplus ends of wire and tighten the screws. The wires should be slightly slack between the two terminals to permit



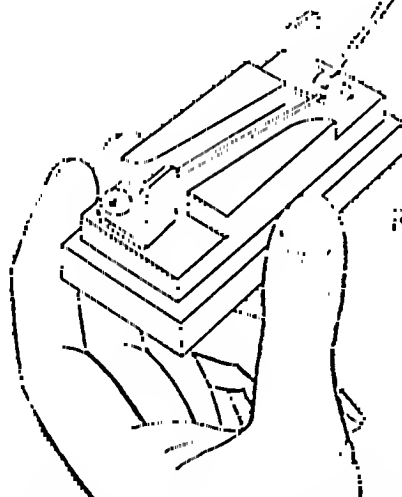
Switch off
First



Examine fuses



Burnt out
fuse



Replace fuse
wire

Fig. 44. Repairing a household lighting fuse

MAIN SERVICES

normal cooling contraction after the wire becomes hot—tight wires snap easily. Replace the fuse-holders in the box and switch the current on at the main.

If the fuse blows again immediately the current is switched on, it is necessary to find the reason. This may be due to overloading the circuit by using more appliances at one time than the circuit can take, especially if additional wiring has been added to the original circuit. Other reasons for fuse failure are faulty connections where the lead is joined to the appliance; the insulation covering the flex wires may have rubbed bare—causing a short circuit. A fault may have developed in a socket, plug or switch, or the circuit may have been shorted by a faulty lamp or breakdown in a radio set. If no apparent fault can be traced, and the fuse continues to blow every time it is replaced, it will be advisable to call in your local Electricity Board to trace the fault.

Electric Fires: These may be used as a complete system of house heating or as occasional sources of heat to supplement other types of heating. Fires are available ranging from small single element types to electric radiators and convector heaters. Specially made heaters are now available for use in nurseries or bathrooms, and these can be hung on walls or ceilings well out of reach of children. Some manufacturers have produced elements which can be arranged as unobtrusive panels in the skirting-boards. Electric convector fires are becoming popular; they are attractive in appearance and can be moved about at will.

Electric Water Heaters: These are either of storage type or the very popular immersion type. Both do the job efficiently, and if used sensibly are no more expensive than other means of water heating. The most popular type is probably an immersion heater used as a supplementary heating to a solid fuel boiler, or for sole use during the summer months. An immersion heater consists of a specially made and protected element, which is fitted into the bottom of the tank. It should be fitted with a thermostat. After fitting the cylinder will need to be well lagged to retain the maximum amount of heat. Before installing an immersion heater it is advisable to obtain expert advice on the matter, as there are a variety of types for different types of cylinder.

An electric storage heater consists of a tank, which is specially manufactured and insulated to give the maximum retention of heat. Containing thermostatically controlled immersion heaters, storage heaters are available in many different sizes, from 1½ gallons to 60 gallons; the smaller models up to about 5 gallons can be fixed to the wall above sink or basin, while larger bath-size models are mounted on the floor.

Instantaneous electric water heaters can be obtained. These heat the water as it flows through; they require a supply point of high loading and are mainly used as sink heaters, giving instant hot water for household cleaning, washing, or washing up.

Electric Cookers: These have many advantages. When considering the purchase of an electric cooker, make sure that the supply and voltage are suited to those of your supply, and choose a cooker which includes a point for kettle or iron.

Electric cookers are reliable and efficient and when properly used are not extravagant in the consumption of current.

Electric cookers are manufactured to meet every requirement, from the one-room flatlet to the huge hotel, and you are sure of finding one to suit your individual requirements, both in size and colour. There are two main types of boiling plates, although some manufacturers produce other types on individual cookers. The main ones are the solid and the radiant types. The radiant plates heat more quickly, and do not require the use of heavy-based cooking utensils. The best choice of cooker is one having at least one radiant and one solid plate for slower cooking. The hot-plates are fitted with a three-way switch, so that the plate can be adjusted to hot, medium or slow heats. A simerstat fixed to the radiant plate is a great advantage, giving complete temperature control. The grill of an electric cooker is completely enclosed, giving a very handy space for keeping food warm.

In an electric oven the elements are either one on each side, or one top and bottom. Both arrangements are satisfactory, but each requires a slightly different technique in use. However, demonstrations are given at all electric showrooms, and full instructions are provided with each cooker.

Electric Irons: A good reliable electric iron can be purchased very cheaply these days and is an essential in any household. An iron is best chosen by the person who will use it, so much depends on individual taste as regards the shape and weight. Some designs are very difficult for a left-handed person to manage, while others are especially designed to be equally easy whether held in the left or right hand. Handle the iron before buying, and be sure to choose a well-balanced model. It should have a comfortable handle with the flex arranged so that it does not get in the way. The weight of the iron can be between $3\frac{1}{2}$ lb. and 7 lb., one of about 5 lb. in weight is generally the easiest to manage. The modern heat-controlled and steam irons are a little more costly, but give excellent service, with an even heat controlled by the dial on the iron.

Washing Machines: There are many types available, and most of the larger stores and showrooms give demonstrations. Automatic and semi-automatic, these machines run on electric power, need a mains supply of water, and an existing method of water heating. In most cases the larger machines need bolting to the floor; they are expensive, but completely automatic. Up to 10 lb. of washing is put in the machine, the control set for the type of washing, e.g. whites, or silks, or woollies. The machine washes them, rinses and spin dries them, leaves the clothes ready to hang out, without having been handled at all.

Another type of electric washing machine has a central agitator and takes a load of about 7 lb. of washing. The various machines in this group vary from each other in several ways, some being fitted with electrically driven wringers, and emptying pumps. In some cases it is necessary to rinse the washing in the sink, after it has been washed in the machine. These are about a quarter the price of the larger machines and are excellent for a small family.

MAIN SERVICES

Smallest of all are the machines fitted with a hand wringer, which will store away under a draining-board and take 3 to 5 lb. of washing.

Electric Food Mixers: These are still classed by most people as a luxury purchase, but they can be invaluable in saving time or energy. There are many types available, and they are used for making cakes and all whisking processes, and each manufacturer makes different attachments for use with his particular mixer. Attachments are usually for mincing, chopping, grating, pulping, liquidizing, potato peeling, etc. An electric food mixer should be chosen for the following points—good construction, pleasing design, ease of storage and cleaning.

Electrical Vacuum Cleaners: Modern vacuum cleaners not only clean carpets but also clean curtains and upholstery, do the dusting and in some cases scrub and polish floors too. They are generally either upright with a long handle, or cylinder-shaped with an enclosed dust-bag. Both types are excellent, and are supplied with a variety of easily changed attachments. Generally speaking the upright type is probably most useful in a house with large expanses of floor, as it is quicker to move.

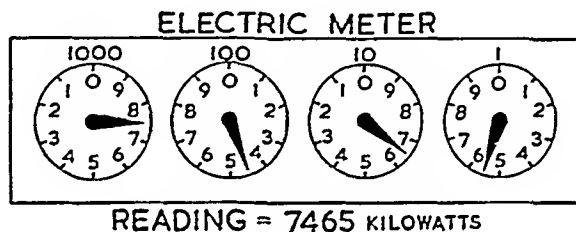


Fig. 45.

When buying a vacuum cleaner, bear in mind that the machine with the greatest suction is not always the most efficient. The following points will help you make up your mind when choosing a vacuum cleaner. Is the machine heavy, or very noisy? Will it store away easily in the space you have to spare for it? Can it be assembled for use quickly and easily? Is the handle easy to hold? Can the nozzle be adjusted for the various kinds of carpets? Is the dust-bag easy to take off and replace? Do the attachments connect quickly and easily? Does the manufacturer give after-sales service?

Electrical Refrigerators: Again regarded by many as somewhat of a luxury owing to the cost of buying and installing, a refrigerator not only saves work but cuts food costs slightly. There are two main types: the first type has an electrically driven motor and compressor. In the other type the compressor is eliminated; this is known as an absorption type. The circulation of refrigerant gases is caused by the application of heat from an electrical element. This second type is practically noiseless, which is a great advantage, especially in a small home. Refrigerators are obtainable in many sizes, the choice of course depending on the size of the family and the space available. As a general guide calculate about one cubic foot per person in storage space.

INTERIOR HOUSE REPAIRS

WALLS. *Types of repair. Damp Walls: Locating causes—faults in chimneys—loose bricks—porous bricks—replacing a brick—damp under window-sills—defects in damp-courses—sealing damp walls—getting to the root of the trouble. Interior Condensation: Cause and effect—wall coverings—use of steam-absorbent paint—extraction fans—fitting air-gratings—removing bricks—insertion of gratings—draught vents. Wall-plugs: Types of walls—locating studs—plugging walls—alternative method. Use of Toggles: Function of toggles—types and fitment. Repairing Plastered Walls: Treatment of wall surfaces—preparing walls—use of powder fillers—mixing and application—large and small repairs.*

FLOORS. *Types of floors—description and construction. Lifting Floor-boards: Locating joists—method of sawing—lifting and cutting—replacing. Filling Cracks between Floor-boards: Value and purpose of fillings—preparation—use of wood strips—filling with paper pulp. Solid Floors: Types of repair—dealing with cracks and holes—securing loose tiles—replacing cracked tiles—damp-proofing.*

DOORS. *Handyman jobs. Sagging Doors: Strain on hinges—replacing loose hinges—plugging screwholes—broken hinges. Easing Doors: Scraping edges—paint thicknesses—locating tightness. Warped Doors: Adjusting the stops—replacement and finishing. Cracked Door Panels: Dealing with small cracks—method of closing large cracks—replacing panels. Draught-proofing Doors: Types of proofing strips—use of metal strips—fitting a draught stop. Care of Door Locks: Types of locks—removing a mortise lock—removing a rim-lock—stripping locks—renewing broken springs—cleaning and oiling—tumbler locks.*

WINDOWS. *Repairing Sash-cords: Danger of frayed cords—removal of sashes—removal of sash-weights—poundage and strength of cords—fitting new cords—oiling pulleys. Reglazing: Removing sashes—removing old putty—measuring for new glass—tools—replacement and finishing. Reglazing Leaded Windows: Extraction of broken glass—replacement—finishing. Cutting Glass: Types of cutters—scratching—breaking. Easing Windows: Types and remedies. Draught-proofing Windows: Use of metal strips—applications and treatments. Sash Screws: Purpose—fitting.*

CARE OF WOODWORK. *Preservation and maintenance. Dry Rot: Development of the disease—spread of fungus—causes—restricted ventilation—recognition of dry rot—testing—treatment—removal of diseased timbers—cauterizing—preservatives—disinfecting tools—value of sensible maintenance. Woodworm: Cause and habits of grubs—treatment of woodworm. Death-watch Beetle: Recognition of condition—treatment.*

GENERAL INTERIOR REPAIRS. *Handyman jobs. Replacing Loose Tiles: Preparation—cementing—replacement. Tiling Walls: Preparation—types of tiles—cutting and hanging—plastic tiles—ceramic tiles—use of snap-line—cutting tiles—tile adhesives. Repairing Cracked Fire-bricks: Preparation—fire-cement—repair and finishing. Fitting Continuous-burning Grates: Types and fitments. Repairing Banisters: Gluing*

—use of shields—‘G’ cramps and tourniquets—loose hand-rails. Repairing Damaged Wallpaper: Cleaning—removing grease marks—repairing tears. Repairing Damaged Sash Frames: Protection of surfaces—dealing with rotted joints—pinning and filling. Repairing a Boiler Door: Removal of damaged talc—replacement. Dealing with Squeaky Stairs: Causes and treatments. Enamelling a Bath: Removal of stains—use of solvents—repainting—finishing.

ALL the jobs described in this section come within the scope of the home handyman; where it is necessary to call in outside expert assistance this is mentioned in the instructions. The repairs described are general ones that come mainly under the heading of ‘odd jobs’. Other repairs associated with particular classes of work are dealt with in other sections. For instance, repairing cracks in ceilings and walls is dealt with in the section on Interior Decorating.

Most of the jobs described in this section can be carried out with the basic tools previously described; the use of any extra or special tools required is given special mention. Attention to these repairs of a general ‘odd job’ nature will do much to keep a house in good running order, make it a more comfortable place in which to live, and save money on the expense of more drastic repairs that might result from neglect of sensible maintenance.

WALLS

Handyman repairs to walls, apart from dealing with holes and cracks before re-decorating, are associated mainly with dampness, and damp conditions which arise from one of two sources—(a) from defects to exterior walls, allowing moisture to enter the structure, and (b) interior conditions leading to condensation of steam from hot water used in kitchens and bathrooms. A lot can be done by the handyman to rectify both conditions; exterior defects are dealt with in the section ‘Exterior House Repairs’; interior defects are dealt with below.

Damp Walls: The construction of modern dwelling-houses is such that every possible precaution is taken to prevent water entering the structure. A damp wall is not a ‘natural’ condition which the occupant has to put up with in wet weather; it is due to a defect that can and should be found and put right. The location and extent of the dampness usually indicates the source. Patches of damp showing through wallpaper covering chimney-breasts indicate a fault in the construction of the chimney, as also patches of damp on walls of adjoining rooms backing the fireplace. This may be due to decayed pointing of the joints between the bricks of the chimney-stack above the roof; the flashing inserted in the base of the chimney-stack just above the roof may have decayed; or there may be a slate or tile missing or cracked in the roof covering near the chimney. It is possible, but not very likely, that water enters the chimney-pot, or the cement flashing capping the top bricks in the chimney-stack may have cracked. Another possible source

of entry is a cracked exterior wall, where the chimney-breast is on an outside wall, due to subsidence, and another possibility is the loosening and dislodgement of a brick during sweeping the chimney.

If the patch of damp is small and isolated on a chimney-breast or backing wall this probably results from a single very porous brick in the breast. This may be cured by replacing the brick with a harder one, and it is a simple matter to chop away the plaster over the damp patch, clear the mortar round the defective brick with a thin brick chisel and old hacksaw blade, and extract the defective brick. The replacement brick should be hard and nonporous. To test the absorbent properties of a brick, weigh it, place it in a bucket of water for 24 hours, and reweigh it; the wet weight should not be more than 10 per cent. greater than the dry weight. The replacement brick is bedded into a mortar made of one part Portland cement and three parts sand, mixed stiffly with water. The cavity should be well wetted with water, also the replacement brick; the sides of the cavity should be 'buttered' with the mortar, spread with a trowel with the side thicknesses of the bed tapering from back to front, being thickest at the back of the cavity. The brick is then inserted, tapped firmly into place, and any open parts of the joint filled with mortar. The plaster is refaced as explained in the section on Interior Decorating.

A damp patch descending under a windowsill indicates a fault in the sill or its bed. The sill may have rotted or shrunk, leaving a gap underneath through which water may enter, or the jointing between the window-frame and brickwork may have decayed and the remedy is simple to effect by renewing the joint and pointing. Damp stains ascending from the top of a window or doorway are also due to frame defects or decayed jointing.

Damp patches on walls descending from ceilings of top-floor rooms are almost certainly due to a break or hole in the roof covering, and these are easily located and repaired. (Exterior damp repairs are dealt with more fully in the following section on Exterior House Repairs.) Ascending damp patches on the base of walls of lower-floor rooms are due probably to defects in the damp-course, necessitating a builder's repair. Odd small patches of damp on walls, for which there is no apparent reason, are usually due to a porous brick, to some obstruction in the cavity, which relays dampness from the outer wall, or—possibly—to a badly fitted metal tie from the inner wall to the outer wall. If the damp area is not extensive, the paper should be stripped and the plaster coated with a damp-proofing bituminous compound, of which there are several brands obtainable from local builder's merchants.

Damp-proofing compounds should not be regarded as cure-alls for damp wall defects; it is much better, and far more sensible, to get to the root of the trouble than to apply a surface treatment. This is especially necessary where damp stains adjoin woodwork; if the surface is sealed an apparent cure may be effected, but it is more than likely that the damp, unable to penetrate the sealer, will spread to

INTERIOR HOUSE REPAIRS

attack the woodwork. To deliberately set up such a condition is asking for a great deal of latent trouble from wet and dry rot, both of which are dealt with later in this section.

Throughout the instructions in this book the handyman will be repeatedly urged to get to the root of the trouble when dealing with every type of repair; it is a sheer waste of time and money to 'patch-up' and gloss over fundamental repairs; this applies particularly when dealing with condensation on walls from steamy atmospheres.

Interior Condensation: Kitchen and bathroom walls that run with water are the result of a natural occurrence. When water is heated it becomes steam, which expands and rises to meet the cold upper surfaces of walls and ceilings, where it condenses and is reformed into water which streams down the wall, or gently weeps, according to the cubic capacity of the room and the amount of steam generated. The process can be simulated by holding a cold dinner plate in front of the spout of a steaming kettle—the colder the surface the quicker condensation is set up. In a bathroom the mirror always shows the first signs of condensation; this is because the surface is cold and the mirror is non-absorbent. Kitchen and bathroom walls are usually tiled or coated with gloss paint which makes the surfaces non-absorbent and aggravates the condition. If wall surfaces in steamy rooms are coated with semi-porous materials, such as distemper or emulsion paint, condensation will be reduced but not eliminated. Opening the windows and doors of steamy rooms cuts down the amount of condensation, but this is not always convenient and the steam may spread to other parts of the house, where it will attack wallpaper, ceilings, metal fittings and furniture.

There is no type of wall covering which is completely steam-absorbent; there is, however, a paint mixed with fine cork granules which is specially manufactured for the walls and ceilings of steamy rooms, but use of this paint does *not* cure the condition *completely*. The condition may be alleviated to a limited extent by fitting one of the top panes of a window in the steamy room with an adjustable vent, of which there are many different kinds. A small extraction fan of the vent-axia type may be fitted high in the wall of the steamy room, and this will considerably reduce the nuisance, but this may be found costly and there is a much easier way of dealing with the condition.

Steam rises and accumulates in the top of a room where it remains as a bank of moisture-impregnated air until it disperses by condensation in contact with cooler ceiling and wall surfaces. Dispersion may be accelerated by providing an outlet and by cooling the upper air of the room. This may be done by inserting an air grating in the outer wall of the affected room; two gratings are better than one; the gratings should be inserted with tops about 3 in. below the ceiling, near the corners of the room. The positions are shown in *Fig. 46*, which illustrates the placing of the two gratings in a room with one outside wall, and in a room with two outside walls.

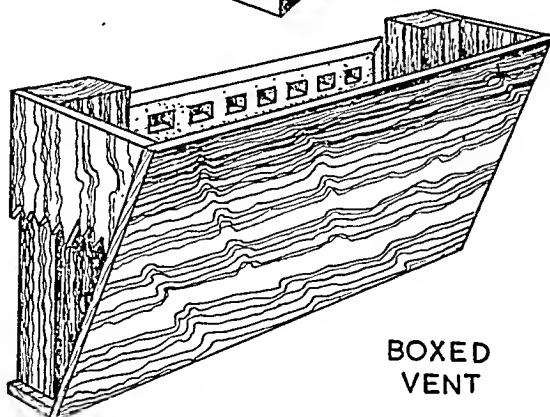
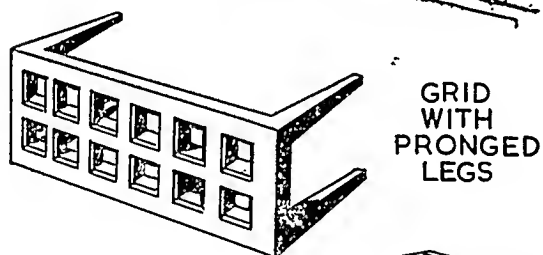
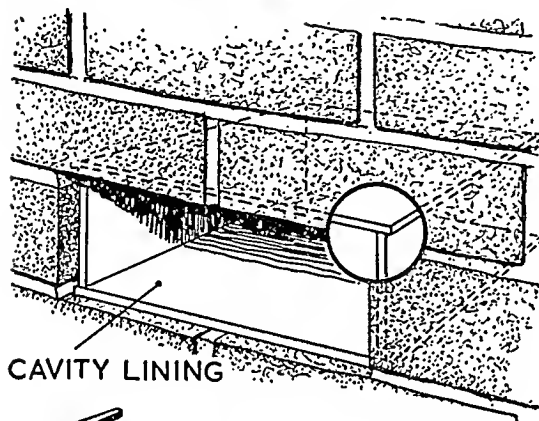
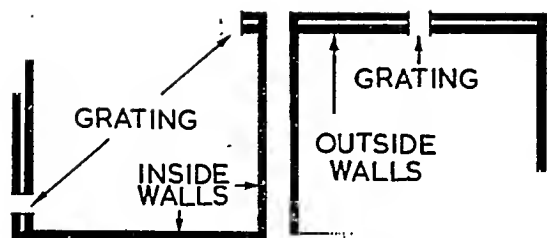


Fig. 46. Wall Gratings

The gratings, which are of galvanized steel, are 9 in. long by 3 in. deep, which is the size of a brick, and to fit them it will be necessary to remove one brick from the inside wall and a corresponding brick from the outside wall. The position of the brick courses may be ascertained by measuring from a window; the outer and inner bricks are removed by raking out the mortar from the joints round each brick, with a thin brick chisel and an old hacksaw blade. Before replacing the bricks removed for the metal gratings, one in the outside wall and one inside the room, it will be necessary to line the cavity with pieces of slate or asbestos (*Fig. 46*), cut so that the top piece rests on the edges of the side-pieces. This is done to prevent stale air circulating in the wall cavity from entering the kitchen or bathroom. The cavity lining may be secured in place with a thin mortar compounded of one part Portland cement to three parts of sand, and mixed with water. The metal grids are fitted with a prong at each corner (*Fig. 46*), and the grids should fit tightly into the corners of the cavity, where they are bedded into a small amount of the cement-mortar. Make good surrounding wall surfaces, as explained in the section on Interior Decorating, after fitting the inner and outer gratings.

This will be found the most effective cure for steamy rooms. If the new gratings create an uncomfortable draught this may be counteracted by fitting a boxed vent over the inside of the gratings. The construction of a simple box vent is illustrated in *Fig. 46*. The front is plywood or $\frac{1}{8}$ -in. hardboard; the wedge-shaped sides are $\frac{3}{4}$ -in. softwood, sloped from a point to a 2-in. top opening. The length of the box should be longer than the grating to accommodate thin battens screwed into the plugged walls at the ends of the grill.

Wall-plugs: In many home-handyman repairs it is necessary to secure a fitting to a wall with screws. A screw cannot be driven into an unprepared brick and plaster wall—at least, not with any degree of permanency—but screws may be driven into the ‘studs’ of lath and plaster walls. Brick and plaster walls sound solid when rapped; lath and plaster walls, which are used mostly for separating upstairs rooms, sound hollow when rapped.

A stud is the upright support, in a lath and plaster wall, to which the laths are nailed before they are covered with plaster. Most studs are 4 in. by 2 in. softwood, placed at intervals of about 12 in. to 15 in. along a wall. A stud can usually be located by inspection of the skirting-board or picture-rail, in which sunken depressions, at about 12-in. to 15-in. intervals, indicate where the picture-rail or skirting-board has been nailed to the studs—find a nail depression and you have found a stud. Studs may also be located by rapping the wall with the handle of a screwdriver; the position of the stud responds with a duller echo than the spaces between. If a stud cannot be found by position of nails, or rapping, it may be located by pushing a bradawl into the wall, moving along the wall with 1 in. between insertions of the bradawl until the stud is found. The stud gives firm resistance to the bradawl; spaces between studs offer lesser resistance to the blade of the tool. Once two adjoining studs have been found it becomes a simple matter

to measure the space between the studs to mark the positions of all the studs in the wall. Screws may then be driven into the studs with impunity, for shelf brackets, hanging cupboards and fittings of all kinds.

Brick and plaster walls must first be plugged before screws can be driven into them. This is done by cutting a hole into the wall and filling the hole with a fibrous plug. The plug-holes may be bored with a carbon-tipped masonry drill used in an electric-powered drill or hand drill, or the hole may be tapped with a 'jumper'. A jumper (or 'star' chisel as it is sometimes called) is a fluted chisel, fitted into

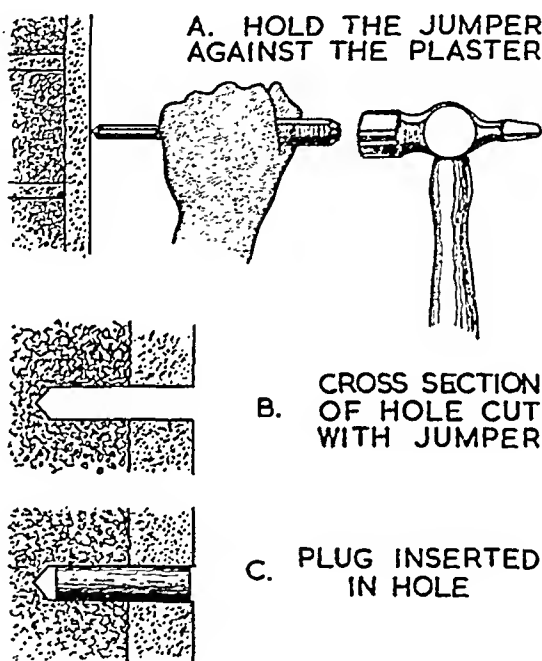


Fig. 47. Inserting wall-plug

a solid steel handle; it is held in position against the wall and the end of the handle is struck with a hammer. In between each hammer blow the jumper is rotated slightly to make a cleanly cut hole. The jumper chisel-blades are exchangeable in the handle, and they are available in standard screw gauge numbers. A number eight jumper (used with a No. 8 screw) will be found the most useful general size, other jumper sizes may be added to the handyman's tool-kit when and as required. The plugs of tubes of compressed fibre are also supplied in standard screw sizes—a number eight plug is used in the same jumper number for No. 8 screws, and so on with other sizes. The sequence of operations is illustrated in *Fig. 47*. (a) shows the jumper held against the wall, (b) shows a cross-

section of the hole cut into the masonry, (c) shows the fibre plug inserted in the hole—note that the hole is slightly longer than the plug. With this done the screw may be driven into the plug to attach any kind of fitment, and will support considerable weights.

An alternative method of plugging embodies the use of a fibre compound in place of the tubular plug. The hole is cut in the usual way; the dry compound, which is obtainable in tins, is mixed with water to the consistency of putty. The putty-like mixture is then tamped into the hole, and the screw is driven into the soft compound, which later hardens to hold the screw firmly in place. Screws may, of course, be removed from both kinds of plugs.

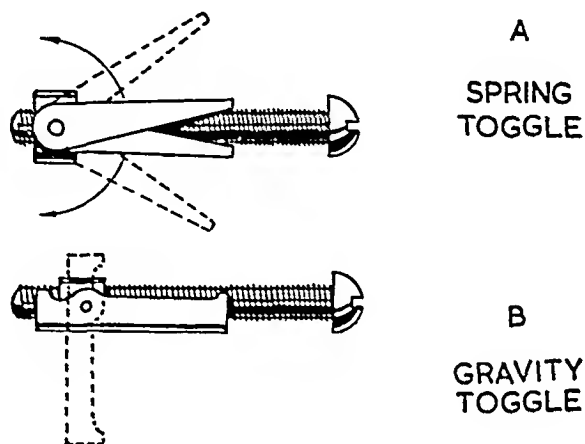


Fig. 48. Toggles

Use of Toggles: In the case of lath and plaster walls it may not always be desirable to screw the fitting where the stud is positioned, also the handyman may wish to attach fittings to thin-surfaced walls faced with hardboard or plasterboard, neither of which are solid enough to take screws. In this case fittings may be attached by using a toggle. There are two main types of toggles, which are both illustrated in *Fig. 48*. The toggle illustrated (a) is a 'spring' toggle; (b) is a 'gravity' toggle.

The function of both types is similar. A hole is drilled in the required position and the toggle is inserted. The spring toggle automatically opens inside the wall covering by force of the spring under the two wings. The single wing of the gravity toggle, as its name implies, opens automatically inside the wall by force of gravity. Both types of toggle have a threaded section and a bolt. The fitment is secured to the wall surface by turning the bolt with a screwdriver. It will, of course, be appreciated that once either type of toggle is inserted in the wall surface, it becomes a fixture and cannot be withdrawn, but should it be necessary, at any later date, to remove the toggle, this may be done by enlarging the entry hole and

pushing the head of the toggle through the hole so that it drops down inside the wall surface.

When there are a series of fittings to be affixed to a wall, as is the case of a set of shelves, the easiest way to secure them is to fix a batten, or battens, to the wall by means of screws driven into wall-plugs, or screws driven into the studs, or the battens may be secured with toggles. The fittings are then screwed to the battens.

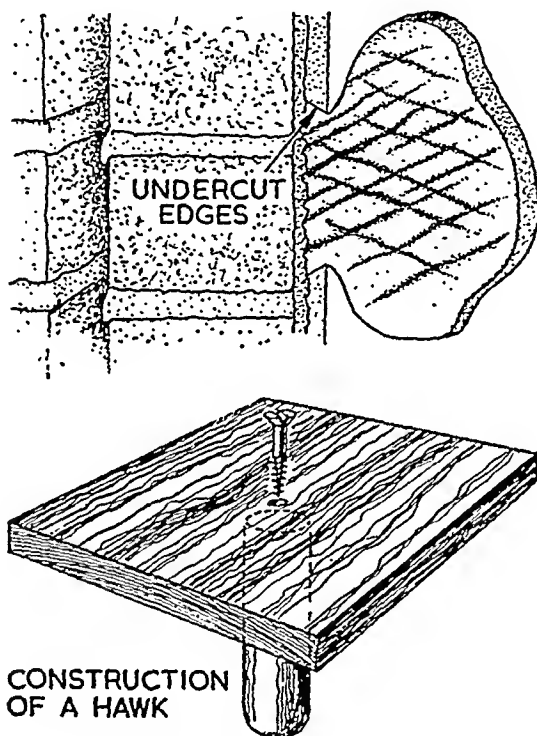


Fig. 49. Repairing plaster walls

Repairing Plastered Walls: The treatment of wall surfaces for redecorating is dealt with in detail later in this book, in the section on Interior Decorating.

The handyman may, however, find it necessary to repair plastered walls at times when redecorating does not follow. This may be especially necessary after attaching fittings of various kinds to walls, or removing them. The damaged plaster should be prepared by scraping any loose plaster from the cavity, at the same time raking the edges of the cavity with the point of a trowel or putty knife, to undercut them, as shown in *Fig. 49*. This is done to provide a 'key' for the new plaster inserted in the hole. After removing the loose plaster the inside of the

cavity and the surrounding area should be thoroughly wetted with water, applied with a brush. This is done to remove dust from the cavity, also to prevent the too-rapid hardening of the new material by absorption. There are many different kinds of patent powder fillers which may be used for repairing damaged plastered walls and the handyman will find these much easier to use than plaster of Paris, which hardens very rapidly and will be found difficult to handle. The method of mixing patent powder fillers is general to all different makes. A small basin should be partly filled with water, the powder from the carton should then be sprinkled on the water into which it will sink. When the powder commences to float on the surface, this indicates that the proportion of powder to water is correct; the surplus water should be poured away, and the filler should then be beaten into a smooth paste with a putty knife. The filler may be applied to the repair with a putty knife or small trowel and if much repair work is to be done at one time it will be advisable to use a 'hawk'. This device, which is also illustrated in *Fig. 49*, is used to transfer the filler from the mixing bowl to the place of work. The hawk simply consists of a piece of square board, fitted with a short length of broom handle, secured with a single screw.

If the repair area is a small one, the filler can be inserted in one go, but before it is applied to the repair the cavity and the surrounding area should again be thoroughly wetted with water. Press the filling well into the cavity so that it is forced into the undercut sides and smooth it level with the surrounding surface, using the edge of the cavity to guide the knife. The repair should be left overnight for the filler to harden and then lightly gone over with a piece of worn grade middle-two glass-paper. The choice of tool used for applying the filler may be varied according to the requirements of the worker. Some handymen use a trowel for this type of repair, others prefer the use of a broad stripping knife of the type used for removing old wallpaper. The filler used for repairing has a very fine texture which will leave a perfectly smooth finish.

In the case of large areas of repair, the cavity may first be partly filled with a coarser and cheaper material—'Sirapite' is suitable for this purpose. This is mixed and applied in exactly the same way as the finishing filler, but the surface of the foundation filler should be cut with the point of a knife to make deep criss-cross marks as illustrated in *Fig. 49*. The surface filler is then applied in the usual way and this may be done immediately after using the foundation filler.

FLOORS

In order to carry out simple repairs to floors of different kinds the handyman should have some knowledge of their construction. The floors of modern dwelling-houses may be roughly grouped under two main headings. These are:

- (a) Suspended floors.
- (b) Solid floors.

Suspended floors are the boarded type found in the main rooms of the house. Solid floors are usually only laid down in kitchens, sculleries and bathrooms, etc., except in the case of some modern dwelling-houses which may have solid floors throughout.

Suspended floors consist of planks which are laid over and nailed to solid lengths of timber, the ends of which are supported by the main structure of the house. The sizes of the solid timbers, which are known as 'joists', may vary in size according to the type of house, the most general size being 4 in. by 2 in. In most cases it will be found that the joists are placed across the shortest width of the room and the planks are laid across the joists in the longest direction. The planks, or to give them their correct name, floor-boards, may differ greatly in size and edge-shape between different types of houses. Those in most common use are square-edged boards of 6 in. by 1 in. prepared softwood and these are secured to the joists with the floor brads described on page 41. These are known as square-edge boards because the edges of the boards are flat and simply butt together as illustrated in *Fig. 50*. The edge joints of other types of boards less often used are also illustrated in *Fig. 50(a)*.

Solid floors usually consist of concrete, which may simply be finished with a smoothed surface or may be faced with tiles. Other surfaces for facing solid floors include plastic and linoleum floor tiles, but these are not usually laid down when the house is built.

Handyman repair jobs to suspended floors may entail the lifting of a board. This is usually done if the boards in a doorway become very worn or deeply scored, and if this happens the worn parts may be lifted and turned over to provide a new surface or new boards fitted. The handyman may also find it necessary to lift floor-boards to obtain access to any of the main services, which in most cases are carried under floors.

Lifting Floor-boards: To lift a board it is necessary to find the nearest joist. This may be located by the position of the floor brads, which can be clearly seen. The exact outline of the joist may be determined by sliding a thin-bladed tool—a knife will do—in between the floor-boards until it meets the edge of the joists. When this is done a pencil line should be marked across the board.

The floor-board is sawn through to remove a section of it and the saw cuts should be made near the joists. The boards are cut through with a keyhole saw (see 'Nest of Small Saws', page 32). If the edges of the boards are very close together it may be necessary to drill a small hole at the starting point to permit entry of the saw blade. The saw should be worked at an angle as illustrated in *Fig. 50(b)*. After one end of the board is sawn cleanly through, the board should be lifted by inserting a strong flat-bladed tool under the sawn edge and using the tool as a lever. The board should then be supported with a batten placed underneath it, as illustrated in *Fig. 50(c)*, and the second end of the board may then be cut through with a handsaw.

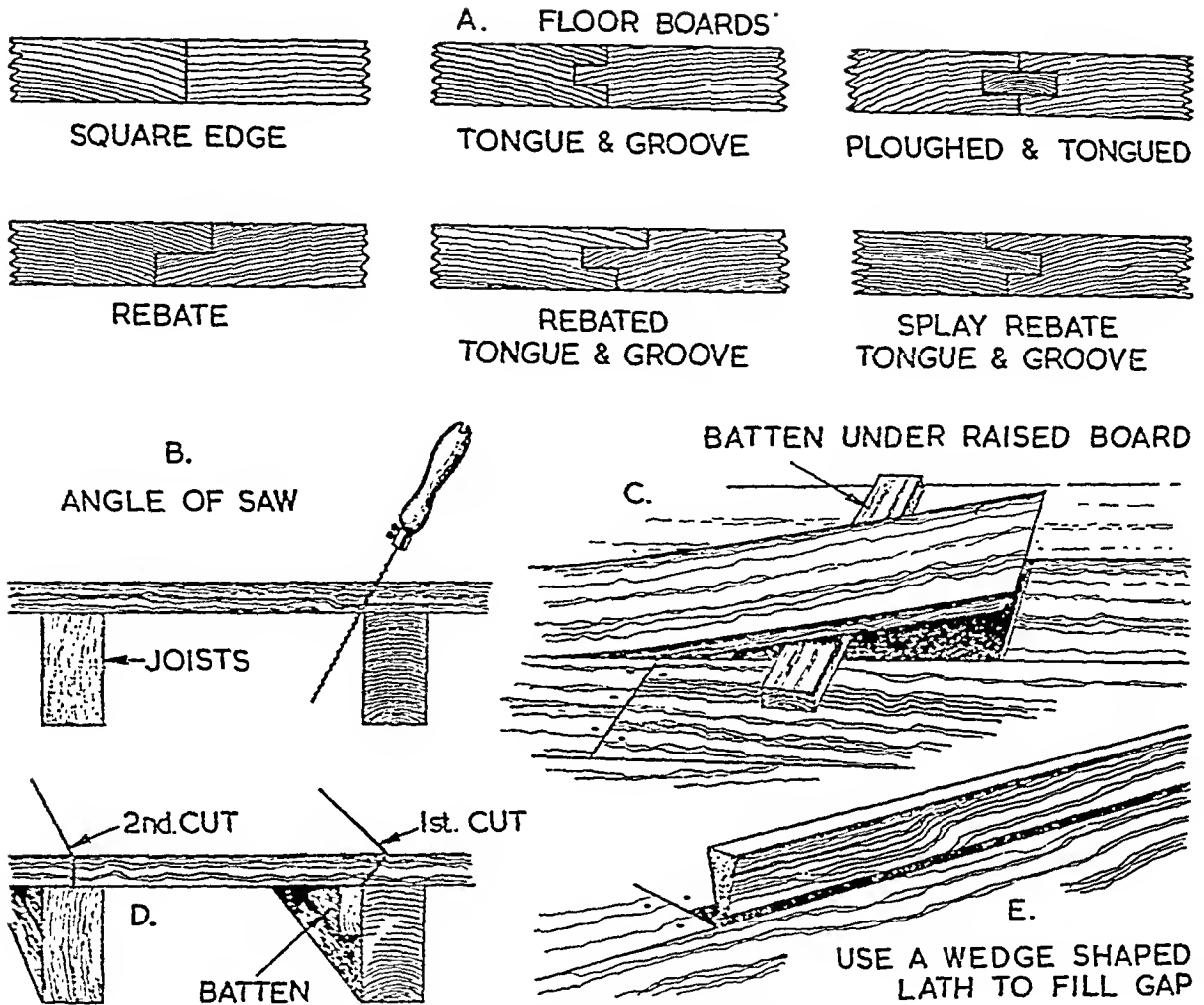


Fig. 50. Lifting floor-boards and filling gaps

After the necessary under-floor repair has been carried out the floor-boards should be replaced as illustrated in *Fig. 50(d)*, which shows that the second end-cut is made across the centre of the supporting joist, and the first slanting edge-cut is supported by a short length of batten screwed to the top edge of the joist. It will be found advisable to use new floor brads when replacing the floor-board and the length of the floor brad should be twice the thickness of the floor-board, i.e. for a 1-in. floor-board the brad should be 2 in. long. When nailing the boards home, set the nails at a slight angle towards the inside of the board. In the case of shaped-edged boards it will be necessary to cut down the length of the board before removing it from the joists; turned boards should be nailed in the middle as well as the sides to counteract heart-side contraction.

Filling Cracks between Floor-boards: Before redecorating a room or recovering a floor any cracks between floor-boards should be filled in. This will cut down the entry of draught into a room and make it more comfortable. Also it will give a longer life to the new floor covering. Additionally, if the surface is to be stained or painted, the filling of cracks will ensure a neater and more workmanlike finish. If the gaps between the floor-boards are large the best method of treatment is to use builders' laths, which should be planed at one edge to make them wedge-shaped as illustrated in *Fig. 50(e)*. The thin end of the wedge is then inserted in the crack and the lath hammered well and truly home. Any section of the lath protruding above the floor surface should be cut down with a hook-scraper or smoothing plane as described on page 34 under 'Handyman's Workbench and Basic Tool Outfit'. Finish with a medium-grade of glass-paper.

Any empty knot holes or deep marks in the floor-boards may be filled with plastic wood which should be sanded level with the surrounding surface after it has hardened.

If the gaps between the floor-boards are uneven in width, or not large enough for the wedge-lath treatment, they may be easily filled with papier mâché. This is made from scraps of newspaper which are torn into small pieces and placed in a saucepan. The paper is then covered with water and the mixture heated. When the paper softens, a small amount of decorators' size—1 oz. of size to each pint of pulp—should be added to stiffen the mixture. Allow to boil for about five minutes then beat the mixture into a smooth pulp. The papier mâché is pressed into the cracks with a putty knife or an old table knife and is finished just above the level of the surface. This should then be left overnight to harden and any rough edges cut smooth and level with diminishing grades of glass-paper, commencing with a fairly coarse grade. The decorative treatment of suspended floors is dealt with later in the section on Interior Decorating.

Solid Floors: Repairs to solid floors usually consist of dealing with cracks or replacing tiles. To repair a crack in a concrete floor the crevice should be thoroughly raked out and the best tool for this job is the tang of a file. The edges of the crevice should be slightly undercut to provide a key for the repair material. After this crevice should be thoroughly wetted with water applied with a brush. The repair material is a mortar made with one part Portland cement and one part sand, which should be mixed to a medium stiff paste with water. Before applying the mortar the crack should again be thoroughly wetted and the mortar mixture should be pressed well home with a trowel, smoothing it level with the surrounding surface. After the mortar commences to stiffen the cracks should be covered with layers of wet newspaper or cloth and the repair should not be walked on for three or four days after it has been carried out.

Repairs to tiled solid floors come under two main headings. Replacing loose tiles, and repairing cracked tiles. In the case of a loose tile, the tile should be removed with a thin-bladed tool and the cavity into which the tile fits should be

slightly deepened and roughened by chopping the surface of the bed-concrete with a hammer and cold chisel. All particles of concrete and dust should be brushed from the cavity, which should be thoroughly wetted. The tile should be well soaked in water before replacing it. The replacement mortar can be a mixture of one part Portland cement to one part sand, mixed to a medium stiff paste, or one of the patent plaster fillers described previously may be used. The roughened base of the cavity should be covered with the mortar and the wetted tile pressed firmly in place. If the tile sinks too low in the cavity it should be removed and a little extra mortar added to bring it up to the same level as the surrounding tiles. If the replacement tile stands too high above the surrounding surface it should be removed and a little of the mortar scraped out until the tile is level. The edge joints should be filled in with the mortar and wiped smooth with a damp cloth. After the repair the surface of the tile and the surrounding area should be cleaned with a damp cloth and the repair covered with several layers of wet newspaper or cloth and left for a few days without walking on it.

A cracked tile may be replaced in the same way. If parts of the tile are broken away and are lost a new tile of the same size and colour should be obtained from a local builders' merchant. As an alternative, if a new replacement tile of the exact type cannot be obtained, the cavity may be filled in with a fine mixture of one part Portland cement to two parts fine sand, mixed with water, and the repair levelled with the surrounding surface with a trowel. When the cement starts to stiffen, the area should be thoroughly wetted and covered for several days with wet newspaper or a cloth. After the repair has hardened it may be suitably coloured. Methods of colouring floors are dealt with in the section 'Interior Decorating'. Concrete and composition floors that raise damp should be treated with a bituminous compound. There are very good proprietary brands which give container instructions for use.

DOORS

There are many jobs to doors which come within the scope of the home handyman, and a well-fitting, smooth-opening door goes a long way to ensure comfort in the home.

Sagging Doors: The weight of an average door in most dwelling-houses may vary from 100 lb. upward and this is quite a lot of weight to be supported on two hinges. It is not difficult to understand why this weight and the constant movement of doors places considerable strain on hinges, causing doors to sag. If a door is badly fitted, the first consideration should be given to the hinges, and it is quite an easy matter to exert pressure against the edge of the door to see if the hinges are loose, or if the screws holding the hinges have loosened, which is most often the case. A hinge may easily be reseated by removing screws and replacing them with new screws of exactly the same gauge, but $\frac{1}{4}$ in. longer. The new

screws should be lightly oiled before inserting them and only one screw should be replaced at a time. Unless the condition is very bad this should effect an immediate cure. If, however, the new screws do not grip firmly in the old holes, the screw-hole should be plugged either with plastic wood or with fibrous plug material of the type used for plugging walls. To give the filling material sufficient time to harden the doors should be half opened and a wedge inserted under the door to support the weight on the hinges.

In the case of a hinge which is cracked or very badly worn and so sloppy at the joint, the only remedy is to replace the hinge with a new one of exactly the same size, securing the new hinge with screws of the same gauge but $\frac{1}{4}$ in. longer than those removed.

Easing Doors: Doors that jam in their frames do so because the wood on the door or the frame has swollen, warped, or has become encrusted with multiple layers of paint. If the latter is the case the best treatment to ease the door is to clean the old paint from the edge of the door and the meeting part of the frame. Paint may be removed with a solvent or with a blowlamp and the use of both these expedients is described in the section on Interior Decorating.

If, however, the wood of the door has swollen, which sometimes happens, it will be necessary to ease the jam by removing a *few* shavings from the edge of the door with a smoothing plane or a hook scraper. It should only be necessary to remove a *few very thin* shavings to effect smooth closing and handymen should take care not to cut away too much of the edge of the door, which may shrink at some later date. Only sufficient wood should be removed to allow the door to close easily. The exact position of the friction may be determined by inserting a sheet of carbon paper between the edge of the door and the framework. When the door is closed the carbon paper will mark the jamming wood at the exact spot.

Warped Doors: There is nothing much that can be done to straighten out a warped door, but the condition can be alleviated by simple alteration to the framework to prevent the entry of draughts. A door closes against a thin piece of wood which is nailed to the framework all round on the inside. The thin strip of wood, which is known as the 'stop', should be removed by gently easing it away from the framework with a thin-bladed tool—a wood chisel will do for this. With the stop removed the old nails should be pulled out with pincers and the door closed. The stop should then be replaced to fit snugly against the edge of the door and renailed to the framework, using oval nails of a length equal to double the thickness of the stop. The heads of the nails should be punched just below the surface of the wood and the paintwork should be touched up.

Cracked Door Panels: If the crack is not extensive, the damage can easily be repaired by using a patent filling powder of the type previously described, for repairing cracks in plastered walls. The filler should be mixed in the usual way, but the wood should not be dampened before applying the filler. A putty knife is used to press the wood filler firmly into the crack, where it should be left to

thoroughly harden before sanding the repair level with the surrounding surface and then retouching it with paint of the appropriate colour.

If the panel is badly cracked it may be repaired *in situ* or the panel completely removed and replaced by a new one of the same size and thickness. To replace a panel it is necessary to ease off the moulding from the framework of the door. This should be done with extreme care to avoid damaging the moulding and the best material for the replacement panel is resin-bonded plywood. To repair the crack *in situ* it will be necessary to attach a small piece of wood each side of the crack to the panel as illustrated in *Fig. 51*. The strips of wood are best secured by means of screws driven through the reverse side of the panel. The edges of the crack should then be coated with glue, and the most suitable kind for this purpose

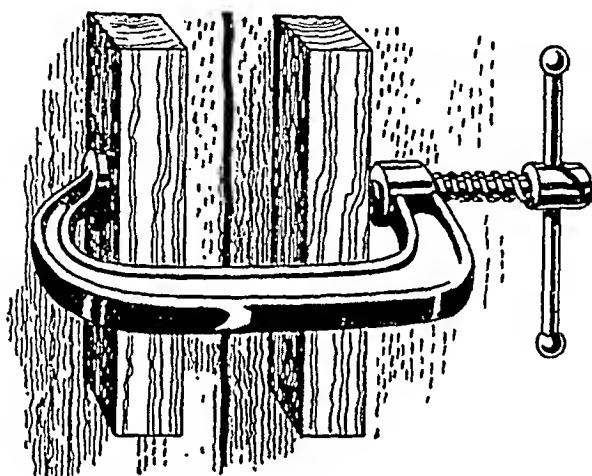


Fig. 51. Repairing cracked door panel

is a synthetic-resin glue which should be applied according to container instructions. When this is done the edges of the crack should be forced together by fitting a 'G' clamp—or more than one if the crack is extensive—over the strips of wood attached to the panel. The 'G' clamp is then slowly tightened until the edges of the crack join and the glue exudes. Any excess glue on the face of the panel should be wiped off immediately and the job should be left for a sensible time for the glue to thoroughly harden, before removing the clamps and wood strips. Obviously it will then be necessary to fill the screwholes and cracked surface with plastic wood or with patent wood-filler before retouching with paint.

Draught-proofing Doors: There are several ways of draught-proofing doors. Most of them consist of fitting strips of proofing material to the edge of the door or to the frame. The material may be extruded rubber strips of the type shown in *Fig. 52(a)* and this type of strip may be nailed to the edge of the door if space permits, or to the door-stop. An alternative method of strip protection is illustrated

in *Fig. 52(b)*, which shows a piece of wood moulding to which is affixed a length of rubber piping. Both these proofing strips are effective, but they are rather unsightly and a third method of draught-proofing, as described below, is recommended. This consists of affixing thin strips of phosphor-bronze to the door-frame. The method of fixing is illustrated in *Fig. 52(c)*, which shows how the thin strips are nailed in position *inside* the framework against the door-stop. The strip

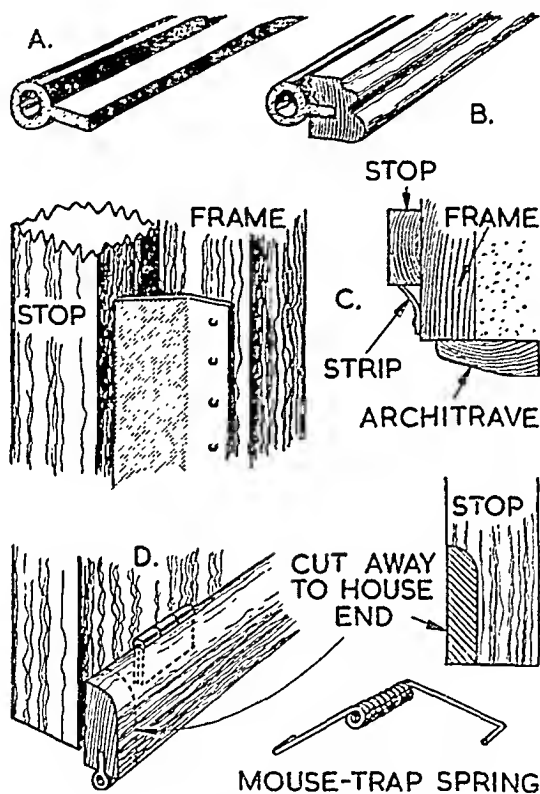


Fig. 52. Draught-proofing doors

bronze is supplied in cartons and there are several different branded types, each with their own container instructions. Most of these strips may be 'sprung' and this is easily done with a special tool supplied with the draught-proofing outfit. The tool impresses a line along the length of the strip which causes the inside edge to be raised slightly from the frame, so that when the door is closed the sprung edge is seated firmly all round against the edge of the door. This method of draught-proofing is quite easy to carry out, but care should be taken not to buckle the thin metal strips when attaching them to the door-frame.

Most of the draught from a door enters through the space under the door and above the floor, and obviously this cannot always be filled in if there is a carpet laid in the room. This difficulty may be overcome by fitting rising-butt hinges, as explained later on page 182 under 'Carpentry'. The effect of rising butts is to raise the door as it opens, thus lifting it over edges of rugs or carpets. A much simpler method of draught-proofing the lower edge of a door may be done by fitting a draught-stop and a simple type of stop is illustrated in *Fig. 52(d)*. This consists of a strip of 2-in. by 1-in. softwood, the top forward edge of which is rounded off with a small plane. A groove is cut in the bottom edge to take the flange of a strip of draught-proofing rubber of the type illustrated in *Fig. 52(a)*. The stop is secured to the outside of the door by means of hinges as shown in the illustration. Before affixing the draught-stop to the door it should be placed in position against the bottom of the door-stop, a shaped portion of which should be cut away with a chisel, as illustrated in *Fig. 52(d)*, to accommodate the ends of the stop. The action of the stop when the door is opened is such that it rides easily over the edges of rugs and carpets. When the door is closed the notches in the stop seat firmly against the ends of the draught-stop, forcing the rubber tube against the floor to effect a perfect seal. If it is found that the action of the stop is sluggish when the door is opened, this may be overcome by fitting a mousetrap spring under the centre of the stop (*Fig. 52(d)*).

Care of Door Locks: Door locks should be cleaned and oiled at regular intervals, at least once a year. There are two main types of locks for interior doors; these are mortise locks and rim-locks. Mortise locks are the type that fit into recesses cut into the woodwork of the door. Rim-locks are the kind which fit on to the face of the door. Both types of locks should be removed from doors for cleaning and for repairs. To remove a mortise lock the door handles should first be removed; with knob-type handles removal is done by releasing a small grub screw which secures the knob to the square shank, which passes through both door and lock. With the lever type it is necessary to remove the complete fitting on one side of the door to extract the shank before removing the lock. Mortise locks are removed by loosening the screws through the face plate on the edge of the door. Once these screws and the shank are removed it should be found an easy matter to lever the lock from the frame.

Rim-locks are removed from doors by loosening and removing all the visible screws on the covering case of the lock. Access to the mechanism of the lock is obtained by removing a side plate in the case of a mortise lock and a back plate in the case of a rim-lock. Both types of plates are held in place by small screw-bolts. Care should be taken in removing plates to prevent the mechanism springing from the body of the lock. With complete removal a sketch should be made of the method of assembling the different parts. This is essential before dismantling the mechanism.

The simple mechanism of a typical lock is illustrated in *Fig. 53*. It will be seen

in the illustration, that the lock contains *two* springs. One of these actuates the sliding bolt that is controlled by turning the door-handle. The other spring actuates the locking bolt, which is operated by turning the key. If either of these is broken, all the parts of the broken spring should be collected and produced when purchasing a new lock spring—springs are obtainable from most local hardware merchants. It will be appreciated that there are dozens of different makes of locks, each with springs of slightly different shapes, and it is essential to produce

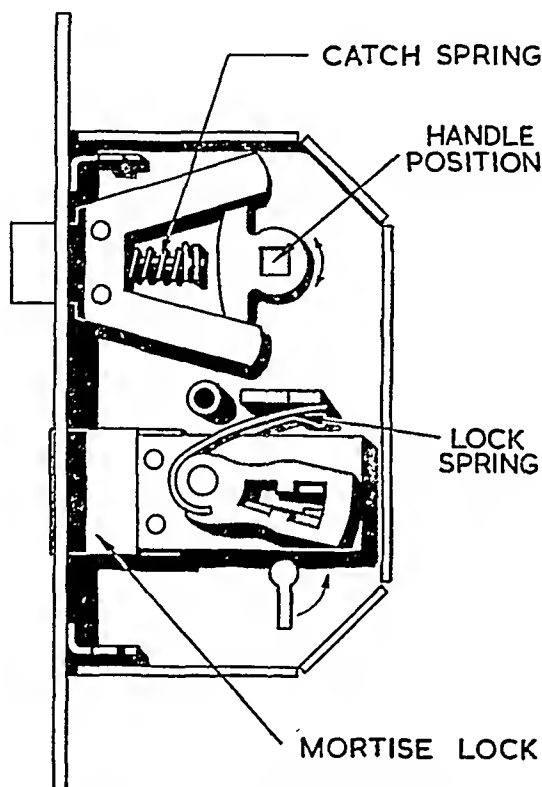


Fig. 53. Simple lock mechanism

the broken parts of the old spring when buying a new one. All the parts of the mechanism should be removed from the case, any rust removed with a soft wire brush and the parts and the inside of the case wiped over with an oily rag before re-assembling the parts and refitting the lock to the door.

Tumbler locks of the 'Yale' type very rarely need attention although the bolt may be occasionally oiled. Repairs to this type of lock are best carried out by an expert as this is not really a job for the handyman. Tumbler locks of the 'Yale' type have a very important mechanical feature that is not generally appreciated.

This consists of a method of 'double locking', which works this way: the bolt of the lock is held in the case by a simple release catch which is operated by hand—this is common to all types of locks of this kind—when the catch is released the bolt springs firmly into the lock-retaining bracket screwed to the frame and the bolt may then be actuated by turning the milled knob at the back of the rim-lock, or by movement of the key on the face side of the door. If after the bolt is sprung the sliding knob is again put in the locked position it will be found impossible to open the door, either by turning the milled knob on the back of the door, or with the key. Neither can the latch be released by insertion of a thin strip of plastic material employed by house-breakers to open this type of lock without a key.

WINDOWS

Replacing a Sash-cord: A frayed sash-cord is dangerous; it creates the danger of sudden snapping which could lead to a nasty accident. Sash-cords should be inspected regularly and replaced immediately any signs of undue wear become apparent. To test a sash-cord for wear, lower the window to its full extent and pull the sash-cord away from the framework, when any worn patches will be easily seen. Any rusty marks on the sash-cord should be viewed with suspicion.

To renew a broken or frayed sash-cord necessitates removal of the sash; in the case of a lower sash it is only necessary to remove that particular sash (sash is just another name for this type of window). If the cords of the upper sash are damaged it will be necessary to remove both sashes. A plan of a sash window with the names of the parts is shown in *Fig. 54*. To remove a sash the sash, or staff bead (*Fig. 54*), should be eased away from the frame with a wood chisel. The chisel should be inserted midway on the sash beading to bow it away from the framework, to release the mitred corners. The beading at both sides should be removed. When this is done it will be found an easy matter to lift the sash from the frame. If it is necessary to repair the cords of the upper sash, the parting bead between the two sashes (see *Fig. 54*) should also be removed before the upper sash can be lifted out of the frame. This may be eased away from the frame by gently pulling with a pair of pliers and by using a wood chisel. The cords at *both* sides of the sash should be replaced even if only one is frayed or broken. Replacement of one cord only will automatically weaken the remaining old cord. If one cord still holds the sash in place, this should be cut through with a sharp knife or a pair of side-cutting pliers.

The next part of the job consists of removing the sash weights, which are accommodated in pockets each side of the window-frame. Access to the weights for both upper and lower sashes is gained through an aperture in the window-frame which is covered with a trap. The trap is not nailed in position and it may be released from the framework by inserting a thin-bladed tool at the lower edge and gently levering it. With the trap released, the weights should be removed from

the pocket inside the frame. The poundage of a sash weight and the thickness of the cord varies according to the weight of the window. The poundage of the sash weight will be stamped in the cast-iron weight and this poundage should be given when purchasing new cord to ensure that it is stout enough for the job it has to do. Should one of the sash weights have tumbled into the cavity between the brickwork inside the window-frame in a position where it may not be recovered, the poundage of the opposite weight for the same window should be given when purchasing a replacement weight. After removing the sashes it will be seen that the sash-cord is attached each side of the frame. The method of attachment may vary and this may be secured by threading the sash through a slot in the side of

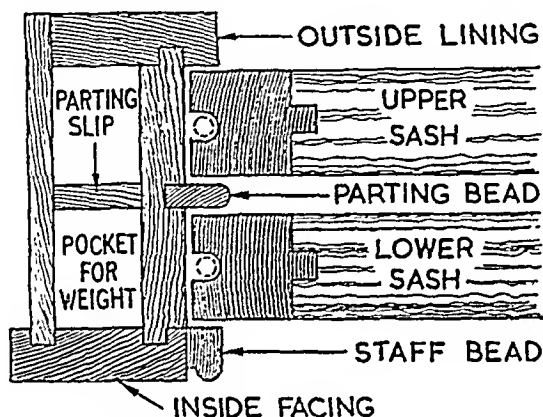


Fig. 54. Plan of sash window

the frame and knotting the end of the cord. Alternatively the cord may be secured in a groove at the side of the frame and fastened there with strong tacks.

Whatever the method of attachment to the sash, replacement should be done in exactly the same way. The length of the new piece of sash-cord may be reckoned by releasing all the knots and placing the two pieces of old cord together. Alternatively the length of the cord may be decided by measuring the amount of cord used in securing one end to the frame, measuring the distance between the top of the sash and the pulley, with the window positioned so that the cord is fully extended and making further allowance for the small amount of cord secured to the weight inside the framework.

The ends of the new cords should first be attached to the sides of the sash by knotting or tacking according to the design and the sash should be replaced in the frame. The cord is then passed over the pulley before securing it to the weights. To facilitate the easy passage of the cord over the pulley and down inside the frame, use a line with a 'mouse'. The mouse is simply a small strip of lead bent

and hammered over the end of a stout line. The unloaded end of the line should be attached to the free end of the sash-cord. The lead mouse is then passed over the pulley, when it will drag the thin line down through the frame until the mouse can be seen in the open weight-cavity. The line is gently pulled over the pulleys until the cord is tightened. Before attaching the weights it is necessary to slide the window up as far as it will go inside the framework, the weight of the window should then be supported by an oval nail tacked firmly into the framework under the sash each side. The cord is then pulled tight and the free ends knotted to the weights. The method of knotting is not really important, except that the knots should be made firm and the end of the cord should be passed under the loop from the hole in the weight so that the weight will not slip off the sash-cord. With this done the weights should be fitted into the cavity and the trap replaced. The nails supporting the sashes should be withdrawn from the frame before replacing the parting beading and/or the sash bead. Should the cords of both upper and lower sashes be renewed the upper sash should be dealt with before the lower one.

Finish the job by oiling the pulleys and retouching any damaged paint-work on the sash bead.

Reglazing: Reglazing a broken window-pane is a simple job for the home handyman. If the window is on a lower floor and can be easily reached from the outside, the reglazing can be done with the window in position in the framework. If the damaged pane is in an upper-floor window it will be found safest to remove the window to replace the damaged pane. Sash windows may be removed as explained above in 'Replacing a Sash-cord'. Wooden casement windows may be removed by releasing the screws securing the hinges to the framework. Metal casement windows may be found difficult to remove, in which case the work to upper-floor windows will have to be done off a ladder.

The first job is to remove all the broken pieces of glass. This should be done carefully, using several thicknesses of cloth to hold the broken pieces of glass. For safety's sake it will be found best to get rid of the broken glass by placing it in a dustbin immediately it is removed, but one small piece should be retained for deciding the weight of the glass when purchasing the new pane. It should here be explained that glass is sold by weight and the description of the glass is governed by the weight per ounce per square foot; as glass is obtainable in a variety of thicknesses for different purposes it is necessary to give the weight of the glass when buying a new piece. In most cases window-panes are of 21-oz. glass, but if a piece of the old pane is produced when purchasing a new pane, this will enable the supplier to check on the weight.

To replace the damaged pane it will be necessary to remove all the old putty. This may be done in one of two ways: The putty may be cut from the recess in the frame by using a hammer and a hacking knife, but this is rather a laborious method of doing a simple job and it will be found much easier to remove the putty, with less risk of damage to the frame, by softening it. Hardened putty may be

softened by the application of heat. In the case of a window-frame the method of heating and softening the old putty may be by an electrically heated soldering iron. Every piece of the old putty should be removed, also any old nails or sprigs securing the old pane of glass inside the rabbet.

The replacement materials consist of a piece of glass of the correct weight, which should be $\frac{1}{8}$ in. smaller all round than the inside dimensions of the rabbet. Also required is some glazier's putty (this is best purchased in tins) and some glazing sprigs (as described on page 41). The tools consist of a light hammer, chisel, putty knife and a pair of pliers. The pliers are used to take off a small piece at each of the four corners of the glass before fitting it into the frame. The corner

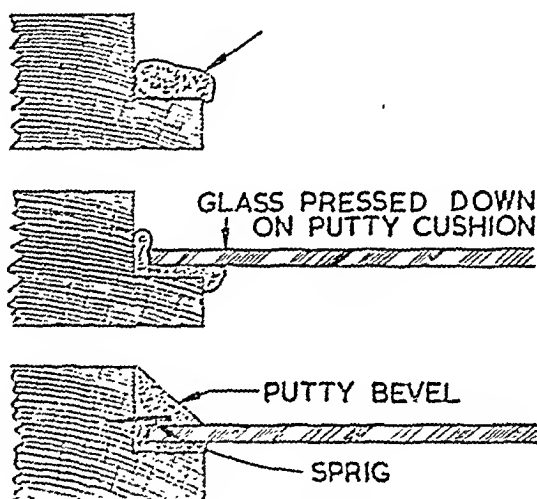


Fig. 55. Reglazing

should be *gently* nibbled between the jaws of the pliers, and it is only necessary to remove a very small amount of glass. This is done to minimize the risk of breakage when replacing the glass. The glass should be dry and is best handled by folding several layers of newspaper over the sharp edges. The inside edges of the rabbet should be treated before fixing the glass in position. Treatment consists of painting to preserve the woodwork; this may be done with a quick-drying aluminium priming paint, or the preservative coat may be 'knotting' which is used for sealing knots in new wood before painting it.

The next part of the job consists of placing a layer of putty on the face of the rabbet which meets the inside with the glass (Fig. 55). To do this, work the putty between the hands until it is quite soft and spread a layer of the soft putty on the newly painted rabbet with a putty knife. With this done the glass should be placed on this cushion of putty and gently, but firmly, pressed down at the edges on the

putty cushion until the cushion shows a flat surface through the glass all round the pane. The layer of putty in this cushion need only be very thin.

The next job is to drive in the glazing sprigs. The best tool for this is a *very* light hammer, or the flat side of a chisel. Care must be taken when driving in the sprigs not to assert too much pressure on the glass or it may crack. The first sprigs positioned should be one at each of the four sides of the glass, but these should not be placed *exactly* opposite each other or the glass may crack. After this, more sprigs should be driven in at a distance of about 4 in. to 6 in. apart. When the nailing has been completed the putty should again be softened by working it between the fingers and a thickness of putty should then be pressed into the remaining part of the rabbet (*Fig. 55*). Finally, shaping of this thickness to a bevel is done with a putty knife and this may require several attempts before attaining perfection. The blade of the putty knife should rest on the top edge of the rabbet and the knife be drawn downwards to make a neat bevel. If the putty tends to stick to the knife this may be overcome by wetting the blade. A final finish is attained by gently brushing the putty bevel with a clean paint-brush. With the bevel finished the knife should be used inside the window to trim away any surplus putty exuded from the thin cushion under the glass. The putty should be left for several days to harden before painting it. When reglazing metal windows, sprigs of course are not used and a special metal window glazing putty is used.

Reglazing Leaded Windows: The panes of glass in leaded windows are held in position by thin strips of lead and not by putty or nails. The damaged glass should be removed by pressing from the inside to force the pieces outwards and the hands should be protected by several layers of thick cloth. The pieces are pushed outwards to spread and bend the edges of the lead strip. A piece of the old glass should be produced when buying a new pane to obtain a piece of the correct weight. It may be necessary to lever the edges of the lead strip gently forward to insert the new piece of glass. When this is done the edges of the lead should be pressed against the replaced glass with the fingers, final pressing should be done by rubbing the edge all round with a piece of soft wood. Any corners of the lead strip which have split should be repaired with a soldering iron. Care should be taken not to overheat and melt the lead of the main strips.

Cutting Glass: There is a knack to glass-cutting which does require some practice before the handyman can become fully proficient. The best tool for cutting glass is a diamond cutter and this type of cutter is always used by professional glaziers. However, diamond tools are expensive and the handyman can use a cheaper tool of the type with a hardened-steel cutter-wheel which will be found quite efficient for cutting glass of medium weights. The piece of glass being cut should be placed on a perfectly smooth, flat and solid surface and the working surface should be covered with a piece of thick carpet felt. The glass is cut by scratching the surface with the cutter which should be guided by a straight edge. It is important that the cutter should always be drawn towards the body rather than pushed away and

the tool should be held upright. There are two ways of separating the pieces after the surface has been scratched. In one method the glass is placed on the edge of the working table with the scratch aligned on the edge of the table and quick sharp pressure is applied to the waste piece, when the glass should crack cleanly along the scratched line.

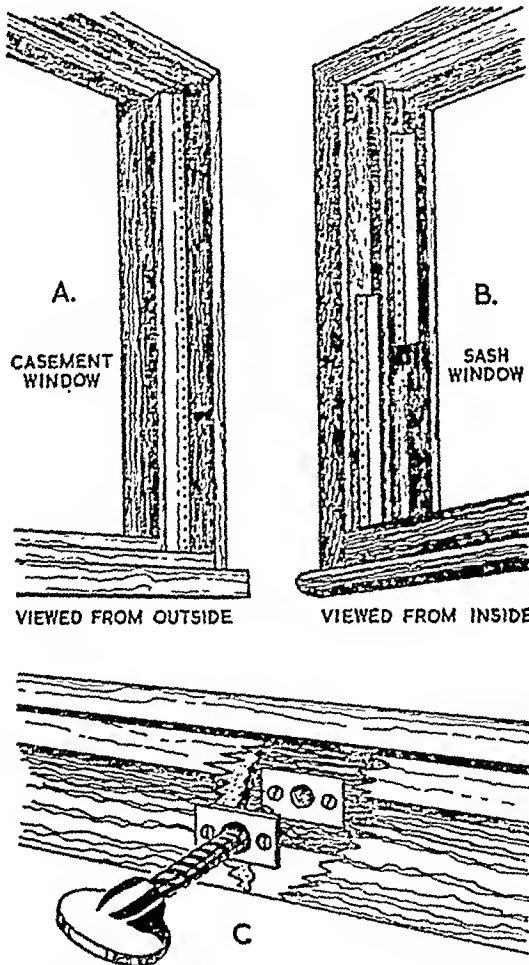


Fig. 56. (a, b) Draught-proofing (c) Sash screw

Another method is to place a match-stick under the glass at each edge immediately under the scratch at each end. Press firmly and sharply on both pieces when the glass should crack cleanly along the scratch. Most amateur failures with cutting glass are due to the nature of the scratch. It is only necessary to make a very light scratch on the glass. If the cutter is run backwards and forwards along the straight

edge this will produce a rough, wide cut which almost always results in the crack running away from the scratch.

Easing Windows: There is very little that can be done to ease a warped window except by easing a few shavings where undue pressure is apparent. In many cases a window that sticks or jams is due to too many thicknesses of paint on the window or frame, and this also applies to metal windows, especially on the hinge side. In the case of sash windows that are difficult to move—it should be possible to raise a lower-sash window with the pressure of one finger—the easy movement of a difficult sash may be gained by cleaning off the edges of the sash beads and parting beads (*Fig. 54*) which become thickly encrusted with paint. If this is not sufficient a few shavings should be cut with a hook scraper from the sash frame itself. This should be done very cautiously as it is very rarely the case that a window swells sufficiently to jam it. Firm closing of a casement window may be attained by easing a *few* shavings from the meeting edge of the rabbet.

Draught-proofing Windows: Casement windows may be draught-proofed in the same way as previously described for draught-proofing doors. The most efficient material for this purpose is phosphor-bronze strip which should be affixed so that the sprung edge is inside the window-frame when it is closed (see *Fig. 56(a)*). Sash windows are difficult to draught-proof but this can be done with phosphor-bronze strip which should be attached to the framework with the sprung side against the beading edges as shown in *Fig. 56(b)*. In many cases the entry of draught through a sash window is due to a faulty catch and it is not a very difficult thing to remove old battered catches and replace them with new ones. A metal casement window should not require draught-proofing; if draught enters a metal window this is usually due to a raised lump of hardened paint on one of the meeting edges. The lump should be chipped off and rubbed smooth.

Sash Screws: A sash screw is a simple device for locking windows. It may be used as a deterrent to burglars, or as a safety measure for upper-floor windows where there are children in the house. There are three parts to a sash screw as illustrated in *Fig. 56(c)*. This consists of a metal plate which is fitted on the face of the sash at the meeting stile—the meeting stile is the one at the top of the lower sash which is lapped by the lower bar of the upper sash. The metal plate is fitted over a drilled hole which should be equal in diameter to the threaded bolt (*Fig. 56(c)*). The threaded plate of the sash screw is fitted to the inside edge of the meeting sash of the upper window and this plate should be let into the woodwork so that it is flush with the surface. The window is simply locked by screwing the bolt through the surface hole into the threaded plate.

CARE OF WOODWORK

Provided woodwork is coated with paint or any other wood preservative and is not subject to undue adverse weather or atmospheric conditions it should require

very little attention beyond repainting, revarnishing, or restaining, etc. Woodwork that is not sufficiently protected may be subject to diseases affecting timber such as dry rot and woodworm.

Dry Rot: The term 'Dry Rot' is something of a misnomer, because the condition is actually caused by dampness which encourages the growth of a fungus. Although dampness is necessary to commence the growth of the fungus, once it has developed, even if the cause of dampness is dealt with, growth may still continue and the rapid development of the fungus is such that it quickly spreads across brick walls or metal girders until it reaches wooden beams, floor-boards and other timbers. The fungus, which spreads to perfectly dry timber after being incubated in damp conditions, absorbs sufficient moisture from the atmosphere to continue its life and will spread to attack more areas of dry timber. In the final stages of the disease the affected timber will be found very dry, light and brittle and it is this feature of the disease which gives the condition its name—dry rot. This, of course, should not be confused with wet rot, which may be set up in house timbers that come into contact with water, such as areas under sinks and around wash-basins, etc.

Dry rot spreads with great rapidity and it will attack any part of a dwelling-house from cellar to roof timbers. Dry rot is a very contagious disease and the fungus spores may be carried from place to place in the same house, or to other houses, on workmen's tools. Therefore, when treating the disease it is very necessary to disinfect all the tools used before putting them into use on another job. It has been explained that dry rot is caused by dampness and there are many reasons why this malignant disease attacks timbers of a house. The most usual place of origin is under floor-boards or in a cellar and the condition may be set up by the use of wood that has not been properly seasoned, which is used in the construction of a new house or in the repair of an old house. The condition may also be set up by the omission of a layer of concrete over building sites, but this layer of oversite concrete is now compulsory in most places.

In many cases the disease has been known to start with small shavings and chips of wood dropped on to the oversite layer of concrete when the house is built. These small pieces of wood decay in damp conditions and provide breeding grounds for the fungi. The most usual cause of dry rot is lack of ventilation under flooring and this may be aggravated by faults in the damp-course which permit ground moisture to enter the timber fabrication of the house. If this is understood, the importance of maintaining adequate ventilation and the condition of the damp-course is obvious. To obstruct the passage of air by covering one of the gratings or metal air bricks near the foundation of dwelling-house walls is simply asking for trouble. This will almost certainly lead in time to an outbreak of dry rot. The condition may also be encouraged accidentally, besides blocking gratings, by short circuiting the damp-course, and the most common example of this is the erection of a rock garden or raised flowerbed against the side of a house. Water may also

enter the structure and attack the timbers, particularly the ends of joists on which floor-boards rest, if the edges of the roof overhanging the cavity wall have any gaps such as missing or broken slates or tiles. Provided the handyman carries out sensible maintenance of his home at regular periods the incubatory conditions favourable to dry rot should not be set up, but should, despite precautions, this disease—and it must always be considered a dangerous and malignant disease—affect house timbers it is not difficult to detect. The most easily recognizable symptom of dry rot is a persistent musty smell in rooms containing the affected timbers. If the condition is advanced a series of squared cracks will be seen on the face of the skirting-board or floor-board under which the fungus is growing. Wood affected by dry rot gives off a dull heavy sound instead of a sharp ringing tone when tapped with a metal tool. A test for dry rot in suspected timbers may be carried out by piercing the woodwork with a sharp blade of a penknife. If the blade meets firm resistance the timber is sound. If, however, it sinks easily and deeply into the timber and the blade is stained by a reddish brown powder when withdrawn, this indicates the presence of dry rot. The fungus is rarely visible on the surface of boards but in most cases it can be clearly seen on the underside of the affected timbers.

There is only one effective cure for dry rot—this should never be regarded as a patching-up job—and that is to completely remove the affected timbers and replace them with new wood. All the diseased timber removed and any sawdust chips or rubbish under the floor-boards should be turned at once—the disease may be spread if the damaged timbers are stored, perhaps for use as firewood. A description of dry-rot fungus is given on page 12. After removing the affected timbers the timber and wall surfaces for a considerable area around the affected parts must be treated with a preservative. Before applying the preservative it will be found advisable to cauterize the areas of brickwork and timber surrounding the affected timbers, also the surface of the concrete or earth under the floor, with a blow-lamp. Obviously reasonable care should be taken when using the blowlamp not to char the timbers, or this might result in a fire breaking out, perhaps some hours after the job has been completed. The method of using a blowlamp is described in the section on Interior Decorating.

There are several good proprietary brands of preservatives for treating timbers near a dry-rot area. Any of these may be used or a very effective preservative can be made by dissolving $\frac{3}{4}$ oz. of sodium fluoride in a pint of water. Whatever type of preservative is used it should be liberally applied to the timbers round the area of infection, also any new timbers, replacing diseased timbers, should be liberally coated with the preservative. The preservative coating must be done very thoroughly and even the ends of new joining timbers should be coated before they are fixed in position. It is essential during the period of repair that all the tools used for the job be kept on the site and everything, including the soles and welts of shoes of the handyman, disinfected.

After dealing with the condition and renewing the timber the under-floor area should be inspected at intervals of about two months to ensure that a complete cure has been effected. The best way to facilitate inspection of under-floor timbers is to screw the new floor-boards to the joists instead of nailing them. In this way it becomes a simple matter to remove two or more boards so that the whole area can be inspected. The handyman should appreciate that, although the disease and its cure necessitates really drastic action, the condition need not be set up if sensible maintenance and inspection are done regularly, and it should always be considered a dangerous practice to cover or block air bricks or gratings which would restrict the free circulation of air under floor-boards.

Woodworm: Woodworm is not a disease; it is usually the result of an attack on timbers by a small grub, and it mainly affects timbers in exactly the opposite conditions of those attacked by dry rot. The parts of the house subject to woodworm are usually those which are dry and warm. The most common cause of woodworm in used timbers is from pieces of wooden furniture that already have been attacked when they are brought into the house. Another possible cause is the use of unseasoned timber. Woodworm is a condition that can be effectively dealt with if the treatment of affected timbers is methodical. The best time of the year to apply anti-woodworm treatment are the Summer months of June, July, and August, as it is during this period that the woodworm is most susceptible to treatment. Recognition of the woodworm is dealt with on page 10. It is a popular fallacy that the fine dust and small holes indicated by the presence of woodworm are caused by the small grubs eating into the wood, but this is incorrect. The visible conditions, fine dust and small holes, are set up by the adult woodworm as it emerges. The female woodworm lays its eggs, which are very small indeed, in scratches and cracks in the wood and the hatching period is about four weeks. The grubs which hatch from the woodworm eggs are the main cause of damage to the timbers. They have a life of several years' duration. They live inside the timber and they bore a series of holes and tunnels in the wood. When their destructive life is over the grown woodworms emerge from the wood, leaving a tell-tale pile of fine dust, and they die about five to seven days from emergence, usually after laying fresh eggs which may lodge in the joints and surface cracks of other woodwork. There are two ways of dealing with woodworm. If the condition is very bad and the timbers—particularly those supporting roofs and floors of dwelling-houses—have been badly attacked, they must be replaced. If the attack is not extensive the woodwork may be treated with a preservative. There are several types of preservative liquids obtainable from local suppliers. Application may vary between different brands. Some are brushed on to the wood and repeated coatings are necessary to ensure that the preservative penetrates deeply into the timber. When purchasing a woodwork preservative ensure that it is of a type that will not damage the polished surfaces of wood. The use of a preservative must be thorough; it is pointless merely to seal off the surface of the timber as in all probability there

are several generations of woodworm grubs alive and active deep in the wood. In addition to coating the surface, the preservative should be injected into the small holes which tunnel into the woodwork colony, and the preservative may be injected into the timber by means of a small syringe, a high-pressure fine spray, or with a special injector supplied by the manufacturers of the preservative.

Dealing with woodworm is a long job that requires a great deal of patience, and thoroughness is essential to cure the condition completely.

Death Watch Beetle: This most destructive timber insect seldom attacks the healthy timbers of a house that is well maintained, but it may attack the woodwork of dwelling-houses that have been neglected, especially where the timbers have been attacked by wet or dry rot. The presence of Death Watch beetle is easily detected by large holes in the timber. The treatment of timbers affected by Death Watch beetle is similar to that of woodworm, where a suitable preservative is injected into holes and is coated on the face of the woodwork.

GENERAL INTERIOR REPAIRS

There are many jobs about the house which come within the scope of the home handyman. The jobs described in this section are those dealing with maintenance of the structure of the house; other types of jobs are dealt with in other sections under their appropriate headings. For instance, small plumbing and electrical repairs will be found in the section dealing with main services.

Replacing Loose Tiles: The tiles referred to are those of fireplaces, surrounds and hearths, also ceramic tiles of bathrooms and kitchens. The loose tile should be cleanly removed from its setting and the base of the cavity should be roughened by chopping it with a cold chisel and hammer. The cavity should then be brushed clean and thoroughly wetted; any loose cement on the back of the tile should be carefully chipped or scraped off and the tile soaked in water. The cementing material for replacing the tile may be a patent powder-filler of the type used for repairing holes in plastered walls, or a suitable cement may be mixed from one part Portland cement and one part sand, mixed to a stiff paste with water. Before replacing the damaged tile, the cavity should again be thoroughly wetted. The back of the tile should also be dampened before replacing and 'battered' with the mixed filler or cement. The tile is pressed firmly in place and lightly thumped with the edge of a clenched fist. Should the tile sink below the level of the surface of surrounding tiles, it should be removed and a little more cement smoothed on the back of the tile. Should the tile be raised above the surrounding surface, a little of the cementing material should be removed.

Tiling Walls: Recent developments in the improved manufacture of modern tiling materials make it possible for the handyman with average ability to tackle the work of tiling walls of bathrooms, lavatories, kitchens, larders, etc. Either full walls, half walls or sections of walls surrounding wash-basins, sinks, stoves and

baths. The method of hanging tiles with a mixture of sand and cement has now been superseded by the use of a mastic tiling adhesive which may be used for hanging ceramic tiles. In addition to ceramic tiles, walls may be hung with plastic tiles or with sheets of tiling material which resemble linoleum.

The surface of the wall which is to be tiled should be thoroughly cleaned. Use a wire brush first to remove all scaly or loose and flaking paint and distemper, then wash the surface with a sugar soap to remove all traces of dirt and grease. Papered walls should be scraped down to the bare plaster. Any holes or cracks should be neatly filled with a patent powder-filler and the entire surface lightly rubbed

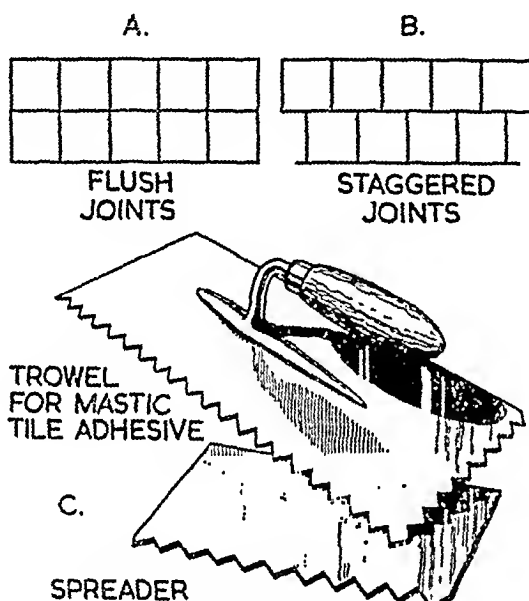


Fig. 57. Tiling walls

down with grade middle-two glass-paper. Plastic tiles are secured to the surface with an adhesive, the composition of which may vary according to the different manufacturers of tiles, and the adhesive should always be applied according to the container instructions. With most types of plastic tiles the adhesive is smeared on the back of the tile, which is then placed in position on the wall surface and slid into the correct position. A final pat with the open hand ensures cohesion. Plastic tiles may be cut with a lino-knife or with a fine-toothed saw. The patterns of the tiles may be varied to suit the individual and they may be hung with flush joints as shown in *Fig. 57(a)*, or with staggered joints, as shown in *Fig. 57(b)*. The inexperienced handyman will find the second method best for neat tiling, and every alternative row should be commenced with a half tile.

The first row of tiles is hung at the bottom of the wall with the lower edge of each tile resting on the skirting-board. Before laying this first row the measurement between the floor-board and the top of the skirting should be checked at each end of the wall to ensure that there is no great difference between the ends. If there is a difference in these dimensions the base of the first row of tiles should be trimmed accordingly. Special border tiles may be obtained for finishing top edges and an edge tile with rounded corners is used for the edges and tops of splash-backs and at corners of window-sills. Plastic tiles should be warmed before hanging them to increase their pliability.

The surfaces for ceramic tiles are prepared in the same way as for plastic tiles and a guide-line should be marked on the wall at an appropriate distance over the top of the skirting-board to the top edge of the first row of tiles. The distance each end from the floor to the measure mark should be checked to ensure that there are no irregularities in the skirting. The guide-line is marked with a 'snap-line'. This simply consists of a length of thin, strong cord which is coated with chalk of a colour to contrast with the wall surface. Each end of the string is held against one of the measure marks; the centre of the line is plucked from the wall surface, and allowed to snap back, when it will mark a clean line. Ceramic tiles may be cut with a glazier's gutter in the same way as glass, or with a hacksaw. The position of the cut should be marked on the face of the tile in pencil, and the pencil line scratched with a glazier's cutter or hacksaw blade. The tile should then be rested on a firm table with the line of cut over the edge of the table, and the unsupported part of the tile sharply rapped with the clenched fist. Any small adjustments and special shapes such as for fitting round taps can be made by nibbling the edge of the tile with a pair of pliers. The mastic adhesive for hanging ceramic tiles is obtainable from local builders' merchants who supply the tiles. The adhesive is spread on the wall surface and not on the back of the tiles, with a trowel that has a toothed edge, as illustrated in *Fig. 57(c)*. A suitable spreader can be made from a thin piece of sheet metal or plastic by cutting the edges with a triangular file to produce a series of teeth. The serrated edge of the tool ensures that the tile adhesive is spread evenly on the wall surface. Only a small section of the wall should be coated at one time with the adhesive. The tiles are placed in position, and lightly but firmly patted with the hand to secure them to the wall. The top edges and projecting corners of ceramic tiling may be finished with border tiles.

Repairing Cracked Firebricks: Cracks in firebricks at the back of grates may be filled with fire-clay cement. This special cement is obtained in tins from local hardware dealers. The crack should be raked clean, to remove all loose material, with the tang of a file and should then be vigorously brushed with a wire brush. The crack and the surrounding area should be thoroughly wetted with water applied with an old paint-brush, and the fire-cement is then pressed firmly into the crack with a small trowel. It is essential to completely fill the crack with

cement, which should be well forced home with the trowel. Smooth the surface to finish and leave overnight to harden.

Fitting Continuous-burning Grates: There are many types of continuous-burning and all night grates for solid fuels, ranging from small detachable grates to larger grates which are permanently fitted into the hearth. Instructions for fitting these grates are provided by the manufacturers, and as they vary considerably, complete instructions for all types of grates are not given. One of the most popular types of continuous-burning grates is one just referred to. This is simply slid into the fireplace and is not secured in any way. Larger grates require anchoring to the hearth and this is done by drilling holes into the grate and plugging the holes with metal plugs before screwing the base of the grate in position. The edges of fixed grates require sealing with fire-cement.

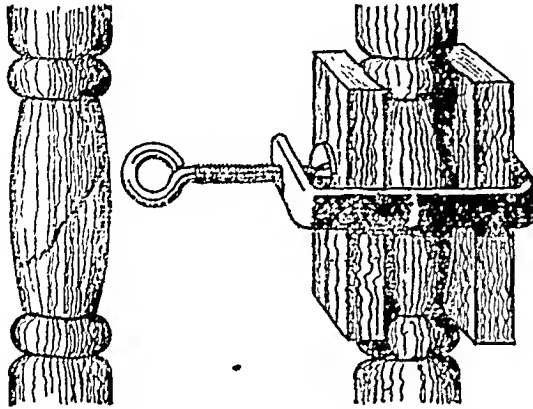


Fig. 58. Repairing a banister rail

Repairing Banisters: If a banister rail is cracked it should be promptly repaired. The most common type of repair is that illustrated in *Fig. 58*, which shows a turned banister rail cracked across the turning. To make the repair, coat each of the split surfaces with glue and clamp the rail firmly together. The surface of the rail should be protected by placing a thin strip of wood each side as shown in the illustration (*Fig. 58*), before tightening a small 'G' clamp over the wooden shields. Any surplus glue exuding from the crack should be wiped off immediately. If the space between the rails makes it difficult to use a 'G' clamp, pressure may be exerted on the glued split by means of a simple tourniquet of copper picture wire which should be twisted tightly over protecting shields of wood.

The hand-rails of banisters should be inspected at regular periods and any looseness should be immediately dealt with. In the case of hand-rails secured to banisters, any looseness may be dealt with by driving screws into countersunk holes by the side of the rails into the newel posts. Loose hand-rails attached to

plastered walls may be secured by tightening the retaining screws. If, however, the plugs holding the screws into the wall have worked loose, the screws and plugs should be removed, the hole filled with the fibrous plugging compound described previously in this section, and the screw replaced.

Repairing Damaged Wallpaper: Paper on walls and ceilings may be kept clean by dusting it with a long-handled feather duster. If this is not done at frequent intervals, dust on the paper may become rubbed in. Dirty marks on wallpaper may be removed by rubbing the paper with a piece of stale bread, rubbing with a circular movement until the bread crumbles away.

Grease marks on wallpaper may be removed with a grease solvent of the kind used for cleaning clothes. The solvent should be applied on a small piece of cotton-wool which should be pressed on the grease mark and not rubbed on the paper. Alternatively, grease spots may be removed with a hot iron, used over several thicknesses of blotting paper. If the iron is too hot it will scorch the paper.

Small tears in wallpaper are easy to repair. The torn part should be folded back over a piece of clean paper and the inner surface of the tear should be brushed with paste. Allow a few minutes for the paste to soak before smoothing the tear on the wall surface and dabbing with a soft clean cloth.

Dirty marks around light switches are difficult to remove and these are best dealt with by re-papering around the switch. If pieces of the original paper are not available, the piece of wallpaper may be of a contrasting colour and pattern. The replacement paper should be cut into a neat square or circle and pasted into position.

Repairing Damaged Sash-frames: If exterior woodwork is painted at regular intervals, this should afford full protection against changing weather conditions, but if exterior painting is neglected, water may enter the woodwork and cause a great deal of damage. If window putties are allowed to dry and crumble, water will enter and attack the joints which will eventually result in a failure of the sash-bar. Sash-frames needing this type of repair should be removed from the window-frame as described above in 'Replacing Broken Sash-cords'. With the sash removed the rotted part of the joint should be hooked out with a wood chisel or screwdriver. The sash-frame should be clamped in a bench vice with bottom rail and side stile correctly aligned. Keeping these two parts lined up, two holes should be drilled into the damaged joint. This may be done with a hand drill or electric drill. A reasonable diameter for the drill bit is $\frac{1}{8}$ in. The drilled holes are then pinned with lengths of dowel rod of the same diameter as the drill bit. The dowel rod should be coated with wood glue before gently hammering it into the drilled holes. The waste end of the dowel is then trimmed flush with the side of the sash-frame. Any cavity under the frame resulting from the removal of rotted wood should be filled with plastic wood and the repair should be coated with priming paint before replacing the sash. Obviously the decayed putty should be hooked out, the rabbet primed and new putty inserted at the first opportunity.

Repairing a Boiler Door: If the small windows of a boiler door become damaged, this will permit the entry of air which will upset the draught arrangements of the boiler and result in a wastage of fuel. Boiler door windows are easily repaired. The repair material is 'talc' which is obtainable from local ironmongers and builders' merchants. The repair is effected by removing the metal plate from the back of the boiler door, and this is done with a screwdriver which is used to release the retaining screws. All the pieces of the damaged pane should be cleanly removed; if they are not too badly damaged they may be used as a pattern for cutting the new piece of talc to shape. If the talc has crumbled, a pattern to fit the exact shape of the aperture should be made with thin cardboard. The pattern—either the old pane or cardboard one—is placed on the talc, which should rest on a smooth, flat surface. The talc should then be scratched with a fine-pointed tool such as

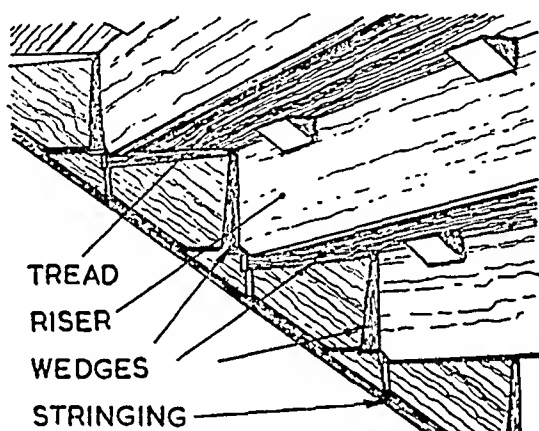


Fig. 59. Staircase construction

a bradawl and this should be used to outline the pattern shape. The pattern is then removed and the talc cut with a pair of kitchen scissors. The new pane of talc is fitted into the window recess and the back plate replaced to finish the job.

Dealing with Squeaky Stairs: A stair that squeaks does not *have* to be endured as the remedy is quite a simple one. The construction of typical stairs is illustrated in *Fig. 59*. The squeaks arise from movement usually of the stair tread against the riser and this is most often due to the failure of the triangular-shaped glued blocks positioned in the angle formed by the tread and the riser. The cure is a simple one. Fresh glue should be brushed on to the wood blocks.

Alternatively if any blocks are missing a small angle iron may be screwed in place to fix the riser to the tread. If there is no means of access to the underneath and inside of the stairs, the loose tread can be refastened by screwing through the tread into the edge of the riser. In most cases this will cure the squeak.

Enamelling a Bath: The surface of an enamelled bath that has become pitted and chipped may be renewed by coating the bath with new enamel. Before going to the trouble of enamelling a bath, which is quite a lengthy and tedious business, the handyman should make sure that the old enamel is damaged and the discoloration is not due to stains from a dripping tap. These stains may be removed by swabbing them with a solution of a $\frac{1}{4}$ teaspoonful of oxalic acid in $\frac{1}{4}$ pint of cold water. The solution should be used very carefully as it is both corrosive and poisonous. Lightly swab the stained area, leave for a *second* or two, thoroughly rinse with running water and repeat as often as necessary, until the stain is gone. If the surface of the enamel is damaged it will be necessary to remove the old enamel before re-enamelling the bath—unless the damage is localized to one or two small patches, in which case the area should be thoroughly cleaned with soft wire wool, coated with metal priming paint and the depressions filled with repeated layers of undercoating before finishing with bath quality enamel.

To remove the enamel from an old bath, the supply of water to the bath should first be cut off. If the taps drip they should be blocked with corks cut to shape, or the tap-washers replaced. The old surface is removed with an enamel solvent, which should be applied with a cloth swab tied to the end of a stick. The solvent is corrosive and should not be allowed to touch the skin, neither should it be permitted to run into the waste-pipe. The overflow outlet and the bath plug-hole should be covered before using the solvent. As much of the resulting sludge as possible should be removed from the bath with a trowel and tin and then the entire surface should be thoroughly washed and dried before further treatment.

The first coat is a metal priming coat and this should be applied thinly and evenly, brushing the paint well in before laying it off. Each stage of renewing the surface should be treated separately and all the coats allowed to thoroughly harden before the next coat is applied. At least two undercoats should be applied over the priming, and if these are applied too thickly the final coat will crack and wrinkle soon after the job is finished. Between each coat the surface should be lightly rubbed down with a fine grade of waterproof glass-paper and all dirt and dust should be removed before repainting. The final coat is a bath quality enamel which is made specially for this work. The enamel should be thoroughly stirred and it will be found most satisfactory to apply it with a new brush. The final coat should be applied quickly and evenly over the inside of the bath. A good quality bath enamel is usually dust-dry about one hour after being applied, but despite this rapid drying, care should be taken not to create a draught or to raise dust in the room, and it will be found best to leave the job for at least 24 hours before cleaning up. The bath should not be used for at least five days and final hardening of the enamel is done by filling the bath with cold water and allowing this to remain in the bath for at least twelve hours before putting the bath into use. Damage to enamelled and re-enamelled baths is caused through running the hot water first—the cold tap should always be turned on before the hot one.

EXTERIOR HOUSE REPAIRS

CHIMNEYS. *Gaining access to top surfaces—safety measures for securing ladders—transporting tools and materials. Chimney-pots: Replacing pots—cowls. Renewing a Chimney Capping: Position of capping—removing loose sections—preparation for repair—composition of new capping material—use of trowel—finishing. Replacing Damaged Bricks: Test for porosity—removing faulty bricks—cleaning and preparing cavity—mixing mortar—replacement and finishing. Repointing a Chimney-stack: Pointing—mortar for pointing—preparation of joints—filling—trimming—cleaning off. Renewing Flashings: Purpose of flashings—where fitted—removal of decayed flashings—replacement—suitable mortar ingredients—window and door flashings.*

ROOFS. *Repairs to Roofs: Replacing slates—use of special tool—zinc strips. Repairing Ridges: Shapes and materials—periodical inspection—cleaning—shapes of ridging tiles—fitting new tiles and slates—gutters—fittings—rust prevention—replacing loose sections—renewing screws and bolts.*

DOWN-PIPES AND DRAINS. *Inspection and repairs—waste-pipes—cleaning swan necks—fitting grills—sewage pipes and vents. Drains: Closed and open drains—inspection traps—cleaning drains—covers.*

WALLS. *Damp-proofing: Anti-damp measures—bituminous coatings—rendering—mixture and application—finishing. Repairs to Damp-courses: Composition of house foundations—damp-course materials—repairing damaged courses. General Exterior House Repairs: Inspection—maintenance—metalwork.*

Only outside repairs are dealt with in this section, exterior decorating is dealt with separately in a later section.

CHIMNEYS

Before carrying out any repairs to chimneys or to the roofs of houses the handyman should make sure that any ladders used to gain access to upper parts of exteriors are firmly secured. All ladders used should be of a sensible length, to project at least 12 in. above the guttering, allowing them to be placed at a reasonable angle to ensure safety. The main ladder should be secured to the fascia board at the top, by using a large screw-eye and length of stout cord as illustrated in *Fig. 60*. Access to the roofing surfaces or chimneys is then gained by a shorter ladder or pair of steps, which is placed to lodge firmly against the part of the main ladder that projects over the edge of the roof (*Fig. 60*). The foot of the steps or short ladder should be firmly lashed to the main ladder. The best way of transporting tools or materials for repairs to roof surfaces is by means of a bucket and a length of stout cord. When carrying out repairs to roofs every care should be taken to prevent tools and materials from sliding down sloping surfaces.

EXTERIOR HOUSE REPAIRS

Chimney-pots: The work of repairing or replacing a chimney-pot is usually beyond the scope of the home handyman and this is a job which requires the attention of a professional builder. It should however be possible for the handyman to fit a cowl or other patent device to a chimney-pot without professional assistance, and instructions for fitting these attachments are provided by the manufacturers.

Renewing a Chimney Capping: The capping, or 'flaunching', is shown in *Fig. 2*. This is a sloping layer of cement which prevents water penetrating the topmost

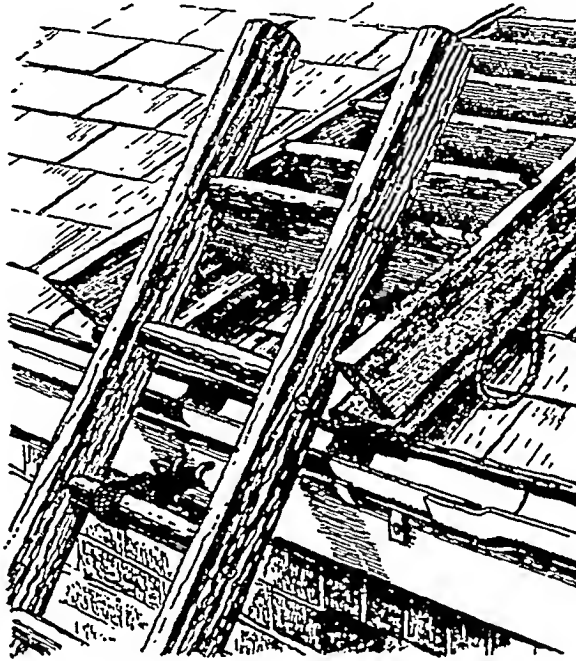


Fig. 60. Exterior repairs: securing ladder before carrying out work on roof

bricks of the chimney-stack. The capping is exposed to varying weather conditions and it may in time crack or decay, in which case it should be repaired or replaced. Examine the capping and remove any loose sections; any parts of the capping that are still tightly fixed to the bricks may be left in position. The new capping material is a mixture of one part Portland cement to three parts sand, mixed with water (full instructions for mixing concrete are given later in this section). The capping material should be used within 30 minutes of mixing it, and the handyman should prepare the old surface before knocking up the material. The tops of the uppermost bricks of the chimney-stack should be brushed with a wire brush to remove any loose surface particles, then thoroughly wetted. The surface to

which the capping is applied should again be wetted before the new capping material is laid in position. The sand and cement mixture may be raised to working level with a bucket and rope. The tool used for capping is a medium-sized trowel, and a hawk, as previously described, will be found useful for transferring the cement mixture from the bucket to the working position. Tap the new capping well in place with the side of the trowel and finish by smoothing the surface so that it slopes downwards to the outer edge. Any cement mixture on the bricks should be removed with a stiff brush before it dries. After laying the new capping

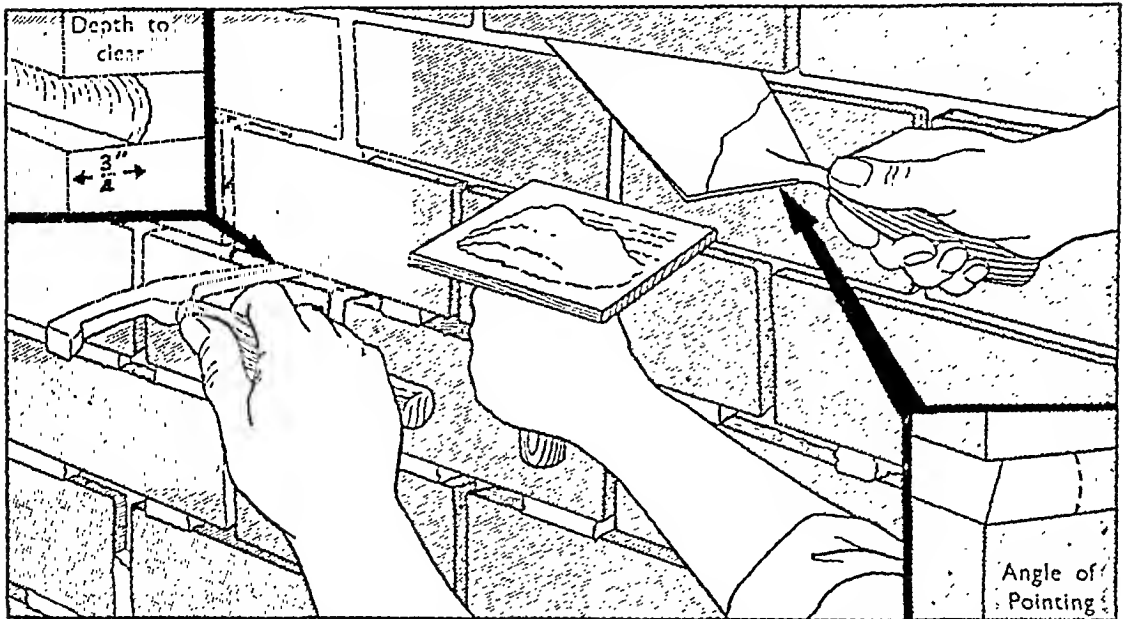


Fig. 61. How the joints between courses of bricks are repointed. Tools shown in this picture are a hawk and a pointing tool

it should be covered with a wet sack, which should be left in place for three or four days after the job is done.

Replacing Damaged Bricks: Any broken or crumbling bricks in a chimney-stack should be replaced with new ones. The replacement bricks should first be tested for porosity as explained on page 82. The old brick is removed by scraping out the mortar in the joints with the tang of a file. A narrow cold chisel should be used to pierce one of the joints at a corner of the brick to permit the entry of a saw blade. If the job is a small one, an old hacksaw blade may be used to cut through the remaining layer of old mortar round the brick. With the damaged brick removed all the old mortar should be chopped and scraped from the cavity

with a trowel, the sides should be swept clean and thoroughly wetted. The replacement brick should also be wetted by soaking it in a bucket of water.

The mortar used for replacing the brick is the same as the mixture for renewing the capping. The inside of the cavity should be wetted and then 'buttered' with mortar spread with a trowel. The surface of the mortar should slope downwards from inside to outside. With this done the new brick should be tapped firmly in position until the face is flush with the remaining bricks in the stack, and any gaps in the joints should be filled level with the mortar. Clean off any mortar adhering to the surrounding brickwork before leaving the job.

Repointing a Chimney-stack: The term 'pointing' is descriptive of the facing of joints between bricks with a material that is harder and more waterproof than

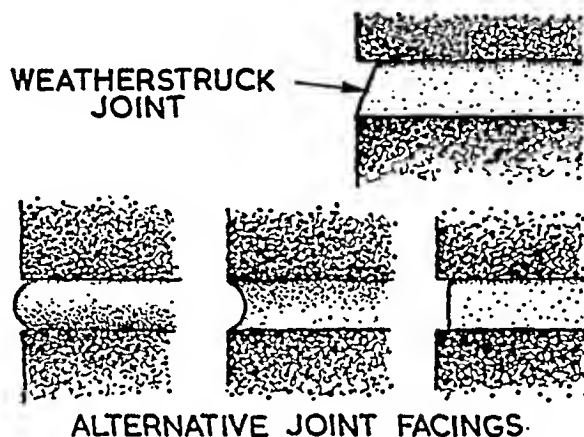


Fig. 62. Repointing a chimney-stack

the mortar used for building. A suitable repointing mortar consists of one part Portland cement and one part sand, mixed with sufficient water to give the mass plasticity. If too much water is added the material will be found unmanageable. The mortar should be freshly mixed just before the repointing is done. Before mixing the mortar the old joints should be well raked out to a depth of at least 1 in. A special raking tool may be used, but the handyman will find the tang of an old file quite suitable for this job. After raking the joints they should be vigorously brushed with a stiff brush and thoroughly wetted. The repointing should be done by tackling a small area at a time, and before each area is repointed the joints should again be wetted. A hawk will be required for holding the pointing mortar, and the tool for the job is a small pointing trowel. The only other tool required is a straight edge—a thin piece of straight wood.

There is quite a knack to transferring the pointing material from the hawk to the joint. A small amount of mortar should be placed on the hawk, and this should be patted smooth, and level with the trowel. The hawk should be held

close against the brickwork, a section of the mortar chopped out with the trowel, and this section rammed well into the raked joint. There should be no void between the new mortar and the old. The upright joints between the bricks should be filled first. The horizontal joints should then be filled and care should be taken

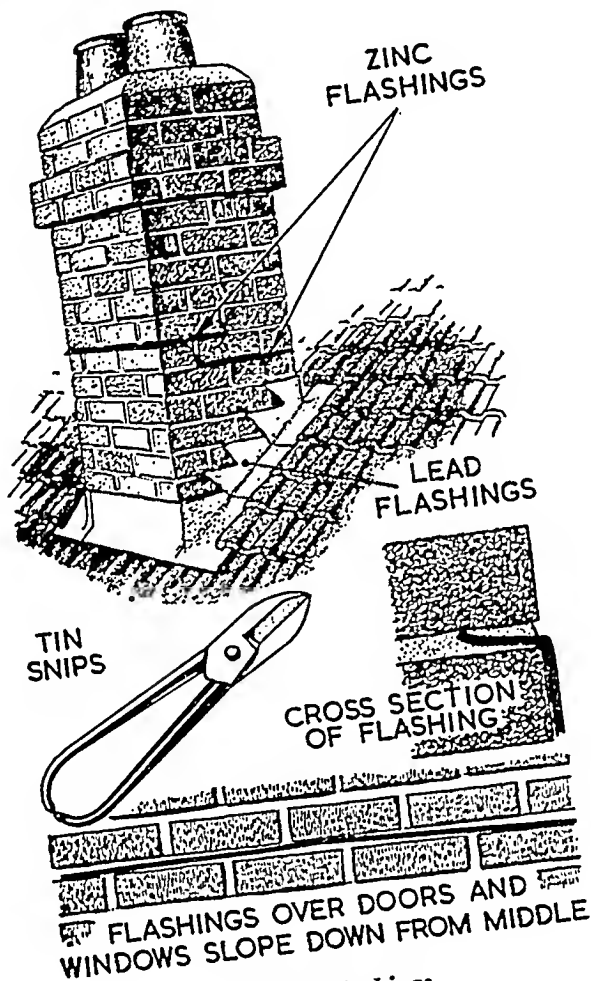


Fig. 63. Flashings

not to smother the brickwork with mortar. The mortar should be pressed well home and smoothed to shape with the edge of the trowel, as illustrated in Fig. 62. The surplus mortar at the bottom edge of the joint is then trimmed off with an old kitchen knife, using a straight edge to guide the knife.

Renewing Flashings: The positions of the flashings in the exterior brickwork

of a house are illustrated in *Fig. 2*. Flashings are inserted in brickwork at the base of chimneys, and over doorways and windows, which are not protected by the eaves. The object of flashings in a chimney is to prevent damp entering the house, and the flashings over windows and doorways prevent water dripping from upper edges of window and door apertures. The shape of the flashings may vary according to the nature of the structure and the flashing material may be of lead or zinc. Of these zinc is the most common material for over window flashings; most chimneys are flashed with lead. With the passage of time zinc will decay, and this is to some extent due to the lime content of the mortar. When flashings decay it will be necessary to renew them to prevent rain-water and melted snow seeping into the main structure. The flashings in chimneys are renewed by raking out the joint and removing the old flashing material, which in most cases will have a zig-zag shape as illustrated in *Fig. 63*. Only one side of the chimney-stack should be dealt with at a time, the flashing removed, a new one cut to shape and inserted, and the joint sealed with fresh mortar and allowed to set before the other sides are dealt with. In addition to the bottom of the chimney lead flashings, supplementary zinc flashings may be inserted between the courses of the stack (*Fig. 63*). It is usually these which decay most. Lead flashings withstand the passage of time, although they may bulge away from the face of the stack, particularly if the wedges have loosened. The wedges are rolled strips of lead hammered into the joint where the top edges of the flashings are inserted. Sections should be hammered flat with a piece of wood held over the lead. Tighten any loose wedges and repoint the joint. The replacement zinc, or lead, flashing is obtainable from local builders' merchants, and is cut to shape with a pair of tin snips. This tool is illustrated in *Fig. 63*. The replacement mortar is best made from sand and cement, and lime should not be used. With the joint cleanly raked out and all the old pieces of the flashing removed, the space between the bricks should be brushed to remove all loose particles—the joint surfaces and surrounding brickwork thoroughly wetted with water. The new mortar is made by mixing one part cement to three parts sand, and this should be mixed to a very stiff paste with just sufficient water added to make the mass plastic. It is advisable to use a waterproof cement for the mortar, or ordinary cement may be used if it is mixed with a waterproofing compound. Mortar is then trowelled into the space between the bricks, the flashing inserted, with the inside edges turned upwards, as shown in *Fig. 63*, and more mortar is inserted to fill the gap between the top of the flashing and the bricks above it. The lower edge of the flashing is bent to fit into tiles, or at the lower edge of the chimney-stack (*Fig. 63*). Any damaged or decayed flashing over windows and doors is removed and replaced in the same way as chimney flashings, and when the new flashing is inserted it should be bent upwards in the middle, as illustrated in *Fig. 63*, to provide a run-away for rain-water. If the handyman is the least bit doubtful about his ability to renew flashing, he should leave the job alone and call in an expert.

ROOFS

Repairs to Roofs: If damage to a roof is extensive, the handyman should call in an expert to do the job, but if one or two slates or tiles have loosened, or become cracked, the work of replacement can quite easily be done by the handyman. A cracked slate that lets in water should be replaced immediately the damage becomes apparent. To remove the damaged slate an arrowhead nail ripper should be used. This tool is illustrated in *Fig. 64*. The arrowhead of the tool is slid under the damaged slate and the tool is then jerked downwards, with good force, so that

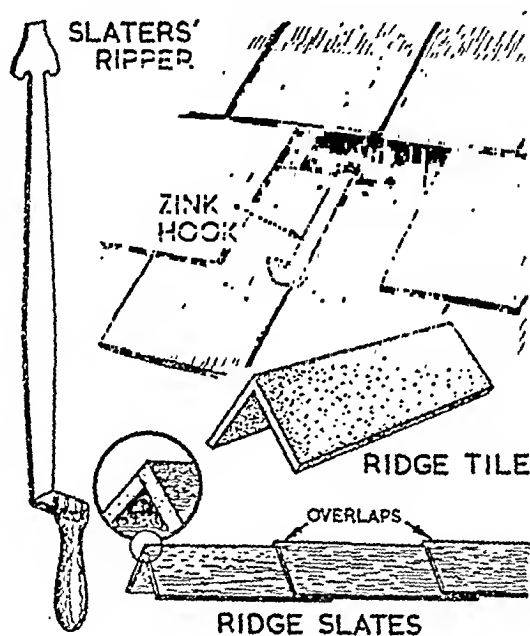


Fig. 64. Repairs to roofs

the sharp edges of the inside of the steel arrowhead cut through the nails holding the slate in position. The replacement slate should be exactly the same size as the old one. The replacement cannot be nailed to the supporting timbers of the roof without removing the adjoining slates and it is held in position by a strip of zinc 1 in. wide, one end of which should be hooked over the top edge of the slate, under the one being replaced, as illustrated in *Fig. 64*. The new slate is then slid into position, and the lower end of the zinc strip is bent to form a second hook (as shown in the illustration, *Fig. 64*). These strips may be purchased from a builders' merchant, or they can be cut from sheet zinc by the handyman, using a pair of tin snips.

Repairing Ridges: The position of the ridge tiles or slates on the roof of a house is indicated in *Fig. 2*. These are used to seal the angles of joining surfaces. The best type of ridge covering, whether for a slate or tiled roof, is earthenware tiles, shaped with right-angled top surfaces, as shown in *Fig. 64*, or half round tiles may be used. Some ridges on houses with slate roofs are of slate, and these are narrow rectangular pieces of slate which are overlapped at the top edge, as shown in *Fig. 64*. The ends of the slates overlap on the ridge as also do the joining edges of the angle. In most cases the slates are secured to the ridges with cement or with a bituminous adhesive compound. Replacement is done in the same way as the original fixing. The ridged tiles used for slate or tile roofs are in most cases cemented to the roof surface. The mortar used for replacement is one part waterproof cement to two parts sand. The new ridging pieces and the underlaying surfaces should be well wetted before cementing the new ridge in place. Repairs to lead roofs and to gulleys are jobs best tackled by the expert, unless the handyman has had a great deal of experience in work of this kind.

Gutters: The function of guttering at the edge of the roof of a house is to carry away rainwater and melted snow. The guttering is usually of cast iron, but it may also be of zinc or asbestos, and the use of the latter material is becoming more usual. Both types of metal gutters are subject to failure of the metal through decay or rust. The types of gutters are illustrated in *Fig. 65*. The home-proud handyman should make a point of carrying out regular inspections to gutters, especially during the Autumn and Winter months, when they become clogged by falling leaves and dirt washed from roof surfaces. The gutters should be cleaned with a stiff brush to remove all dirt. This is best done on a dry day. Any rusted patches should be vigorously attacked with a wire brush and emery cloth, cleaning the metal until it is sharp and bright, before priming it with red lead paint, or coating with aluminium paint, or treating with anti-rust paint which has a high zinc content. The inside surfaces of gutters should be painted at least once a year with lead paint to preserve the metal. Asbestos gutters are not prone to decay or rust.

Some types of guttering are affixed to the fascia board with brackets. These being of metal, they are attacked by adverse weather conditions and if not properly cared for will rust and break. When examining gutters, special attention should be paid to brackets and any rusted metal should be cleaned bare and bright, primed with red lead, or treated with anti-rust paint, and given two coats of lead undercoating before touching up with a finishing coat of paint. Ogee guttering is fixed to the fascia board with galvanized screws, which with the passage of time rust and sometimes snap, especially after falls of snow. Any damaged screws should be replaced by drilling through the back of the gutter and affixing new screws. The edges of sections of guttering are shaped so that the pieces overlap each other as shown in *Fig. 65*.

According to the position of the shaped end, the pieces of the guttering are known as right- and left-hand sections. Should it be necessary to replace a section

that has become rusted through or cracked, take special care to obtain a new section of the appropriate left- or right-hand description. The joints of guttering are sealed with lead paint and putty or a bituminous compound. If the joints are not tight through decay in the sealing, the old putty, etc., should be raked out and the lapping parts of the metal coated with lead paint, finished with fresh soft putty or sealing compound, and firmly tapped into the space between the two sections. The edges of the putty should be cut smooth and touched over with

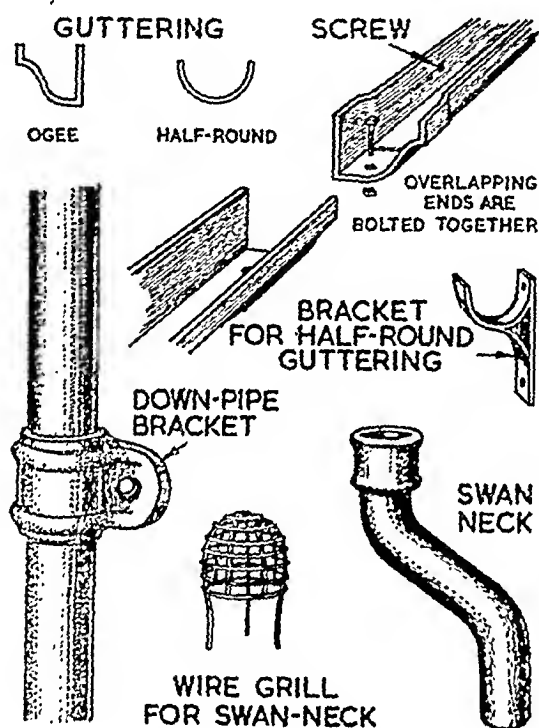


Fig. 65. Types of gutters

one or two coats of lead paint. The overlapping ends of lengths and pieces of guttering are secured with gutter bolts. Although galvanized when new, these bolts may rust with the passage of time and sometimes break. Any worn or rusted bolts should be replaced by new ones of the same thickness and length. A smear of putty or sealing compound should be wiped under the bolt heads before securing the nuts. Old gutter bolts that stubbornly resist removal with pliers or footpad grips may be removed by cutting through the bolt with a hacksaw—wielded just above the nut. Gutterings which are fixed to fascia boards are adjusted to 'run'. This simply means that the lengths of guttering are fitted so that they

fall slightly downwards towards the down-pipes which carry rain-water into the house drains. If after a heavy fall of snow or storm, water splashes over the edge of the guttering, this may be due to strain on the brackets or gutter screws, resulting in one or more sections of the guttering losing its run. It may also be due to some obstruction, such as dead leaves, birds' nests, etc., inside the guttering. If the run is interfered with it will be necessary to re-adjust that section of guttering. This usually consists of relocating the brackets and tightening or renewing gutter screws.

DOWN-PIPES AND DRAINS

Down-pipes: The sections of down-pipes (identified in *Fig. 2*) should be inspected and cleaned at regular intervals and any rusted patches dealt with as explained above. Broken or loose joints should be tightened and cracked sections should be repaired with lead paint and soft putty, or with metal cement, unless the crack is wide or extensive, in which case it will be necessary to replace the damaged section. Sections of down-pipe are secured to outside wall surfaces by means of stout nails or screws driven into wall-plugs through the holes in the brackets, as illustrated in *Fig. 65*. It is necessary to remove the bracket to replace a damaged section of pipe. In most cases down-pipes are metal, and being cast iron they require careful handling to avoid any risk of breakage. In some modern houses, down-pipes may be of asbestos; this material is as brittle as cast iron and will easily crack if dealt with too roughly.

Other pipes running down the outside of a house are the waste-pipes from baths, lavatory basins and sinks, and sewage air pipes. They should also be inspected at regular intervals and any necessary maintenance carried out as explained above.

When inspecting gutters, the top sections of down-pipes, including the curved swan-neck (see *Fig. 65*), should be cleaned. This is best done by inserting a length of flexible curtain spring into the opening and working it backwards and forwards to remove any entrapped leaves or other obstruction, such as birds' nests. After probing the swan-neck, any loosened rubbish should be swilled down by a bucket of water poured into the top opening. Protection from obstructions can be afforded to downpipes by fitting a dome-shaped wire grill of the type illustrated in *Fig. 65*. The pipes on a side of a house which project above the surface of the guttering of the roof are not main water pipes; these are commonly known as sewer pipes and their function is to provide a supply of air to the sewage draining of a house. These work in the same way as sewage vents, which may be found in the gardens of most houses, in the form of projecting pipes fitted with a grill or perforated top, and placed somewhere between the house and the road. These vents do not exist as some people imagine for the purpose of carrying off sewer gases; their sole function is to permit the free entry of air so that when water is run through the sewage drain a vacuum or air lock is not caused.

DOWN-PIPES AND DRAINS

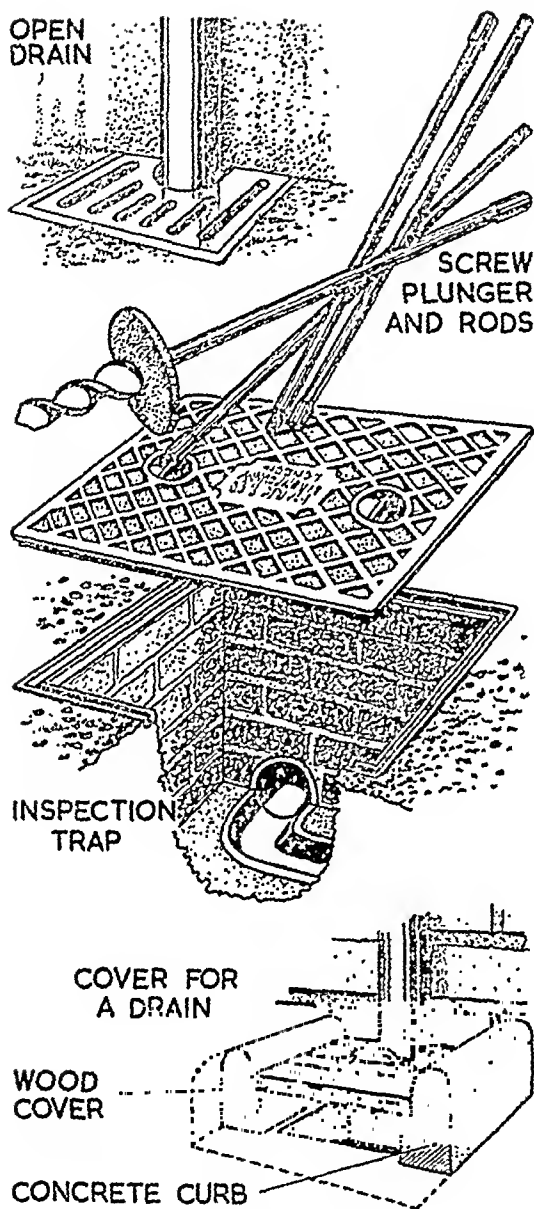


Fig. 66. Drains

Drains: All down-pipes run into drains. Rainwater pipes usually run into sealed drains; waste-water pipes run into open drains of the type illustrated in Fig. 66. The water is passed to the main sewage through an inspection trap as illustrated in Fig. 66. Access to the inspection trap is gained by a square metal cover or

manhole. The cover of the inspection trap should be lifted at intervals, and the inside surfaces of the trap inspected for any cracks to brickwork or concrete, necessitating repair; also any scum from house-waste pipes should be cleaned off, and the inside surfaces of the inspection trap sprinkled with disinfectant powder. All drains should be flushed at fairly frequent intervals with hot soda-water to remove any grease that may have solidified on the insides of the pipes. If a drain clogs it should be cleared without delay and unless the handyman possesses the necessary equipment, which consists of bamboo rods, a screw and plunger, as illustrated in *Fig. 66*, drain clearance is a job for a plumber. However, before calling a plumber, the handyman should lift the cover of the inspection trap and try to clear the exit pipes with a long pole. Drains should be kept covered, and if they run flush with paths it is advisable to make a brick or concrete edging of the type shown in *Fig. 66*, and this should be fitted with a wood cover. Drain covers will prevent the entry of sweepings and dead leaves, etc., and covered drains are also more hygienic.

WALLS

Damp-proofing: Most handyman jobs to exterior walls consist of repairs and maintenance, to prevent the entry of damp. The joints between bricks should be inspected periodically and any decayed pointing should be raked out and replaced with new pointing, as explained in describing pointing chimneys earlier in this section. Any cracks due to minor subsidences should be raked out and the joints filled with new mortar. If there are any persistent damp patches in the inside walls of the house, these may be due to outside defects, such as porous bricks. Protection against entry of damp may be afforded by coating the outside bricks with a bituminous damp-proofing compound or facing the bricks with a thin layer of concrete, and this protective coating is known as rendering. A good mixture for the concrete is one part waterproof cement to three parts sand. The dry ingredients should be riddled through a sieve of fine mesh, before adding water, and the minimum amount of water only should be added to make the dry ingredients workable. The wall surface to be rendered should be prepared by raking out the joints and brushing the wall surface with a wire brush. After this, the area undergoing treatment should be thoroughly wetted with water. The concrete is spread on the wall surface with a float. If the job is a small one it is not necessary to go to the expense of purchasing a metal float and a simple float can easily be made from a piece of smooth flat wood to which should be affixed a simple wooden handle as illustrated in *Fig. 67*. A hawk, as previously described, is used with the float to hold the concrete near the surface under treatment. The layer of concrete need only be a very thin one, and in order to finish with a smooth workman-like surface, thin pieces of wood should be fixed to the wall as illustrated in *Fig. 67*—builders' laths are quite suitable for this purpose. The freshly mixed

concrete is well spread on the wall surface between the wood battens with the trowel; finishing is done with a screed—a wooden straight-edge—which is worked over the surface of the concrete with a see-saw movement and with the edges of the screed resting on the piece of wood, as illustrated in *Fig. 67*. The surface may then be finally finished by dabbing it with a scrubbing brush or smoothing it gently with the float. To smooth a flat concrete surface is something which

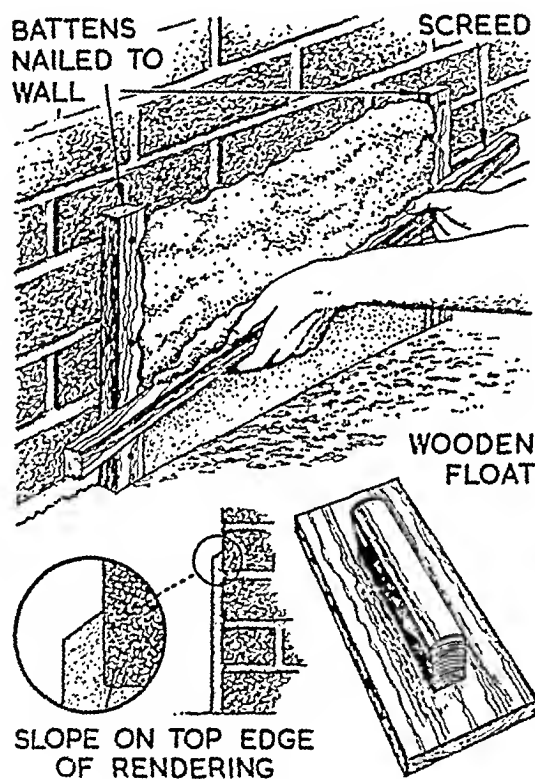


Fig. 67. Damp-proofing exterior walls

requires some degree of skill, but the handyman of average ability will soon get the feel of the job, after a few trial attempts. The secret of successful finishing lies in the use of the minimum amount of water when mixing the rendering. (The top edge of the rendering should be finished to slant downwards and outwards *Fig. 67*). Damp-proofing to outside walls may also be effected by coating the surface of porous bricks with a cement paint.

Repairs to Damp-courses: One of the most general causes of damp in walls of a house is due to the failure of the damp-course, and brief references to damp-

courses have been made on pages 14 and 73. However, to clarify the instructions about damp-courses, a cross-section of a typical wall is illustrated in *Fig. 68*. This shows the base of the wall with concrete foundation on which is erected brick footings, before the wall proper is built. The wall of a house consists of two separate walls, or skins, between which there is a cavity. At the base of the wall, above the footings, is placed a layer of damp-proof material. This may be slate, tar or bituminized felt. This layer of material is known as the damp-course. The function of the damp-course is to prevent the rising of ground moisture from entering the structure of the house. Obviously if the damp-course does become damaged, it will fail and water will be permitted to enter the structure.

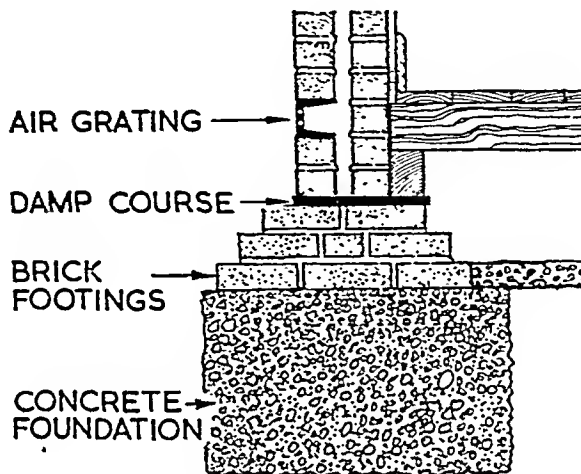


Fig. 68. Cross-section of wall-base

It has been previously explained in the instructions for dealing with dry rot, that the damp-courses are sometimes short-circuited by rock gardens or flower-beds piled against the walls of the house.

A damp-course is a very reliable feature of the construction of the house, and it should reasonably last the life of the house, but should there be any damage to the course, it will be necessary to renew it, by cleaning out the joint and inserting new damp-proofing material. This is a very fiddly job, and one which should be carried out very carefully, and which must be done thoroughly to obtain full protection. Only a small section of the wall should be dealt with at a time, and the ends of joining sections of the damp-course, which may consist of one layer of bituminized felt, or two layers of slate, should overlap.

General Exterior House Repairs: The outside woodwork of houses should be inspected at regular intervals, and any ageing paint surfaces should be recoated before adverse conditions have a chance to attack the woodwork. Special attention

should be given to the edges of the windows and door frames. Any decayed or crumbling joints between walls and wooden framework should be hooked out and replaced with pointing mortar. Dried and decayed putty around window-frames should be replaced with fresh putty as previously described. Outside metalwork should receive special attention. Any rusted metalwork may be treated with the special rust-proof compound previously described. The preparations consist of cleaning any loose particles from the surface with a wire brush; the rust-proofing is then painted on the metalwork and it oxidizes the old rust and prevents the formation of new rust.

OUTBUILDINGS, FENCES, GATES AND PATHS

Repairs—maintenance—use of concrete.

OUTBUILDINGS. *Garden Sheds—Re-covering roofs—stripping—application of preservatives—use of roofing felt—fitting and fixing—battens and capping—rotted board ends—base drainage—weatherboards for doors—ventilation. Greenhouses: Paint surfaces—renewal of putties—treatment of knots—treatment of resinous timbers. Garages: Base drainage—gutters—filling holes in galvanized sheeting—repairs to cracked asbestos panels—adjusting sagging doors—treatment of hinges and joints—rebracing.*

FENCES. *Rotting Boards and Posts: Fitting a gravel board—use of preservatives—maintenance of fence-posts—use of spurs—angle irons—wood and concrete spurs.*

GATES. *Maintenance and repairs—inspection and the renewing of capping—repairs to dragging gates—replacing gate-posts—removal of rotted stumps—treatment of new posts.*

PATHS. *Resurfacing: Use of Colas—application—covering with shingle—finishing—camber.*

CONCRETE. *Uses of Concrete. Materials: Cement—aggregates—sand and water—reinforcement. Tools and Equipment: Mixing and finishing tools—making a bunker—quality of ingredients—storing cement. Estimating: Sample estimate—proportion of ingredients—table of material ratios. Measuring and Mixing: Making a measuring box—measuring and mixing—wetting and turning—maturing concrete—use in frosty weather—waterproofing concrete—colouring concrete. Making a Concrete Path: Siting—foundation—use of formwork—levels and runs—mixing and laying—finishing—use of screed—use of float—protection after laying. Concrete Floors: Erection of formwork—direction of run. Making Concrete Slabs: Use of formwork—sand bed—ratio of ingredients—use of colour—filling and levelling—cutting slabs to shape—lifting and stacking—making crazy pavement. Concrete Bricks: Use of moulds—suitable mix—filling and finishing. Building a Garden Wall: Foundation—mortar—use of preformed bricks—checking the level. Concrete Garden Pools: Types—preparation—construction—use of formwork—batch mixing—edging. Rock Gardens: Making concrete rocks. Concrete Blocks: Use of moulds—lightweight concrete—foundations—reinforcement.*

THE good state of outbuildings and other exterior features is just as important as the maintenance of the main structure to the well-run home. The outbuildings, etc., should be inspected at regular intervals and any necessary repairs should be carried out as soon as deterioration is noticed. Repairs that can be carried out by the home handyman are described in this section.

Most of the jobs described in this section can be carried out with the basic

tools previously described; the use of any extra or special tools required is given special mention. Attention to these repairs of a general 'odd job' nature will do much to keep the property in good running order, make it a more efficient place in which to live, and save money on the expense of more drastic repairs.

OUTBUILDINGS

Garden Sheds: Whatever it may be used for, as a workshop, home for garden tools, or for storing coal, the garden shed should be watertight. Assuming that the shed is reasonably well-built, inspection for watertightness should be directed mainly to the roof and the base of sides—these are the parts most easily attacked by varying weather conditions. If the shed has a wooden roof that is covered with roofing felt, the felt may deteriorate with the passage of time, and as soon as any ageing which permits the entry of water is noticed, the roof should be re-covered. This may be done with roofing felt or with tiles made of the same material as the felt. The best type of roofing felt is that treated with a bituminous compound, and this type of felt is obtainable in rolls varying in width—the most general being 3 ft.

Before re-covering the roof with new felt, the old material should be stripped off and the boards liberally coated with creosote, or any other outdoor wood preservative. There are two ways of covering a roof with felt: the strips cut from the roll may be laid horizontally on the roof, or strips may be cut to fit over the apex of gable-roofed sheds. Both methods are illustrated in *Fig. 69*. If the strips are laid horizontally on the sloping roof 3 in. or 4 in. of the edge of the felt should be tucked under the eaves (*Fig. 69*) and the ends of the strips cut from the rolls should also be taken under the side edges of the roof. The under-edge should be fitted first, and the best method of securing roofing felt is to nail it to the timbers of the shed roof with large-headed galvanized nails, through builders' laths as shown in *Fig. 69*. Obviously when nailing through the underside of the roof timbers, the length of the nails should be such that they do not pierce the roof timbers to penetrate the felt on the face side. With the under-edge secured the free edge should be nailed to the roof timbers, using only sufficient nails to hold the felt firmly in place. With this done, the ends of the strip should be folded over the side edges of the roof and secured with galvanized nails through battens.

In most cases it will be necessary to use more than one strip of felt for covering the side of a roof; the lower edge of the second strip should overlap the top of the first strip by at least 3 in. to provide a weather-tight seam, and this edge should be nailed in position first, using large-headed galvanized nails which should be driven through both thicknesses of felt at a distance of about 3 in. to 4 in. apart. The ends of the strip should then be secured and folded under the eaves of the gables, and the top edge should be nailed lightly in place. If there is sufficient

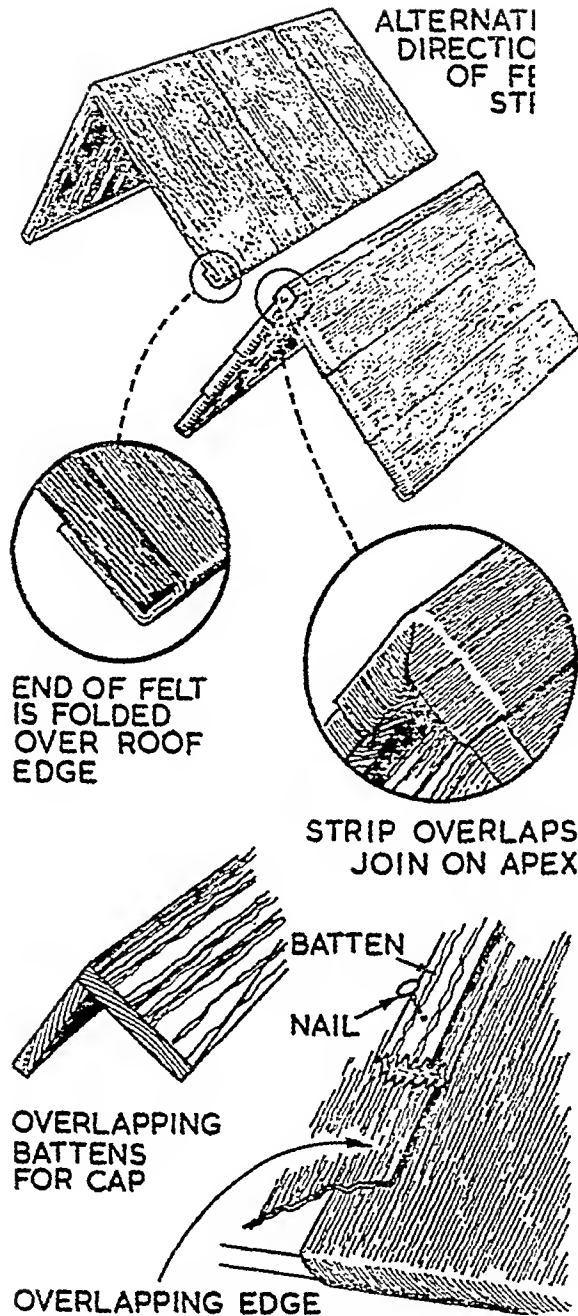


Fig. 69. Covering a shed roof with felt (1)

felt to fold over the ridge, this should be hammered down on the opposite side of the gabled roof. If the overlap is considerable, the other side of the roof may be covered before nailing the edge of the strip folded over the gable in place.

The felt should be arranged so that there are no gaps on the ridge. If it does happen that a join is to be made on the apex of the roof, the join should be overlapped with a narrow strip of felt as shown in *Fig. 69*. The security of the felt is then strengthened by nailing battens over the felt running from ridge to lower eaves as shown in the illustration (*Fig. 69*). Builders' laths will be sufficient for small roofs; for large roofs the vertical battens may be of 2-in. by 1-in. softwood. Either material should be liberally coated with a wood preservative before nailing into place, using large-headed galvanized nails. If the roof is sufficiently large to warrant the use of 2-in. by 1-in. battens, it will be found advisable to cap the roof with battens of the same size nailed on to the ridge. The boards are positioned as shown in *Fig. 69*, with overlapping edges. The distance between battens should be not less than 2 ft., and the number of battens varies with the length of the roof section.

If it is found more economical to run the strips of felt lengthways over the span of the roof, this should be done as shown in the illustration (*Fig. 70*), with a continuous strip of felt running from under the eaves at one side of the roof, up and over the ridge down the other side, and finishing under the eaves on that side. The adjoining edges of the strips of felt should overlap by at least 2 in., and with this type of covering the battens should be nailed over the visible seam of the overlapping joint.

As an alternative to rolls of sheet roofing felt, tiles of the same material may be used. These are available from local ironmongers, and builders' merchants, in a variety of shapes and sizes. The price of tiles is slightly greater than that of roofing felt to cover the same area, but they are much more attractive in appearance, and they can be obtained in different colours. The shape of the tiles may vary; some of the standard shapes are shown in *Fig. 70*. When buying tiles it is a good plan to tell the supplier the size of the roof being covered. The tiles are fixed to the roof timbers, which should be cleared of old felt and coated with a wood preservative, with galvanized iron nails, which should not be so long that they pierce the timbers. Tiling is commenced at the lower edge of the roof, and the first row of tiles should be bent under the eaves in the same way as the roofing felt described above. Succeeding rows of tiles should overlap the joints of the first row, as shown in *Fig. 70*, and this method of lapping the joints should be continued with each succeeding row of felt tiles. At the ridge, or at the apex of the roof, if it is a lean-to, the uppermost rows of tiles each side should overlap in the same way as felt, and this type of roof covering is best finished with a ridge-cap as explained above. It is not necessary to fit vertical battens over felt roofing tiles. In the finished roof none of the nails should show; these are covered by the overlapping ends of the tiles (*Fig. 70*).

Floors of garden sheds are usually of timber or concrete. Whatever the floor material, adequate protection should be afforded against the seepage of water dripping from the edges of the roof. If this is not done, the outside edge of the

OUTBUILDINGS

floor, and the base of the timbers at the sides of the shed, are subjected to a great deal of unnecessary wetting which becomes absorbed in the timbers or concrete flooring, and will eventually rot the lower ends of the timbers and make the shed damp. Any interior dampness should be avoided as much as possible, if the shed

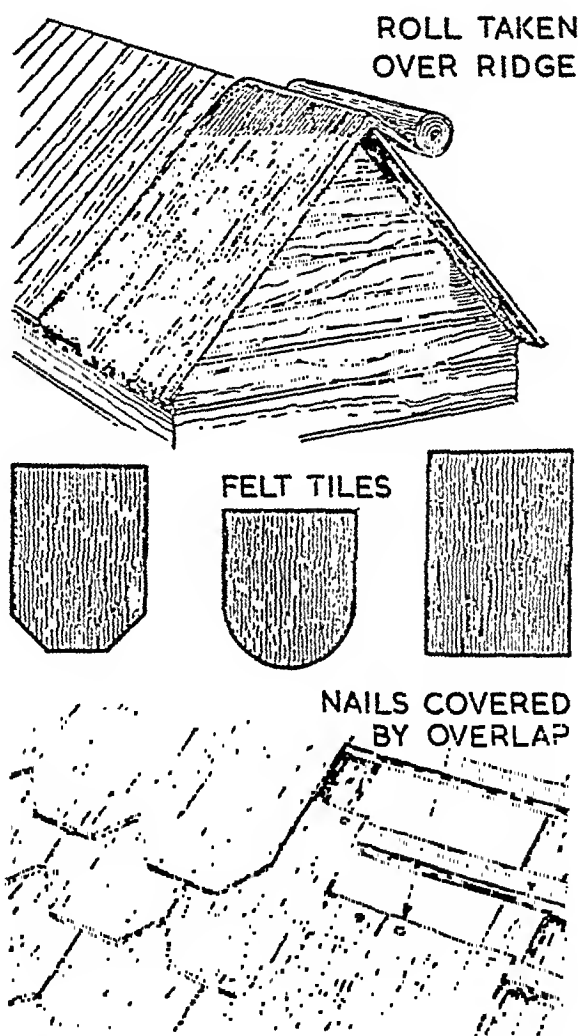


Fig. 70. Covering a shed roof with felt (2)

is used as a workshop. A simple method of preventing the entry of excess water is illustrated in *Fig. 71*, which shows a section of the base of a shed, the floor of which may be timber or concrete. A shallow trench should be dug all round the edge of the shed, for a width and depth of about three inches; the trench should then be topped up with concrete, which should slope sharply downwards,

and outwards, as shown in *Fig. 71*. Water dripping from the eaves of the roof will then run off the concrete (which may be improved by mixing with waterproof cement) to prevent the entry of a great deal of unnecessary water.

If the lower timbers of the sides of the shed have been subjected to frequent soakings in rain-water they may rot, but provided the timbers are not too fragile any broken gaps along the lower edge of the sides may be filled in with a gravel board. 6-in. by 1-in. softwood is suitable for this purpose, and the top edge of the board should be planed to provide an outward and downward slope as illustrated in *Fig. 71*. All sides of the board should be liberally coated with outdoor wood preservative before the boards are nailed in place to the upright timbers.

Windows and doors of sheds should fit snugly in their frames, and the door of a garden shed is best if it opens outwards and not inwards. This allows better protection to be given against the entry of rain-water, also the opening of the door does not take up any of the working space inside the shed. If the shed door faces a rainy direction, additional protection against the entry of rain-water may be afforded by fitting a weather-board over the top of the door, and another smaller weather-board along the bottom of the door, this one fixed to the door itself as shown in *Fig. 71*. The weather-board at the top of the door consists of a piece of 6-in. by 1-in. softwood, nailed to triangular supports at the ends, which are secured by means of screws driven through from the inside of the shed. The weather-board on the lower edge of the door is made in the same way from 3-in. by 1-in. softwood.

A garden shed requires ventilation and a simple way of affording this is to bore a series of holes through the ends of the gables as shown in *Fig. 71*. If the eaves do not give sufficient protection against the entry of rain-water through the air-holes, the vents should be overhung by a simple weather-board. The vents should be drilled at each end of the shed, or—in the case of a lean-to—ventilation holes should be drilled through at the top of the sloping sides. Should it be necessary to conserve heat in winter, a hinged door can be fitted over the inside of the holes.

Greenhouses: Greenhouses and garden frames should be repainted as soon as any deterioration of the existing paint surface is noticed. Special consideration should be given when inspecting greenhouses, etc., to the putty, and any decayed putty should be removed and replaced by new putty as soon as deterioration is noticed. Cracked glass may be repaired by sealing the joint with putty, but the best treatment is to remove damaged glass and replace it with new pieces. Outside edge drainage to greenhouses and permanently sited cold frames may be afforded in the same way as for garden sheds, described above.

Any weeping knots should be given thorough attention; this consists of removing the old paint over the knot and from an area extending several inches around it, by softening the paint with a blow-lamp or a paint solvent, and scraping the wood bare. If a solvent is used, this should be thoroughly neutralized before coating

OUTBUILDINGS

the knots with knotting-quality shellac. The shellac should cover the knot and the timber around the knot. After the shellac dries—it takes only a few minutes to dry—the bare wood should be primed with pink priming paint, or aluminium priming paint, and the priming coat should be followed by two applications of

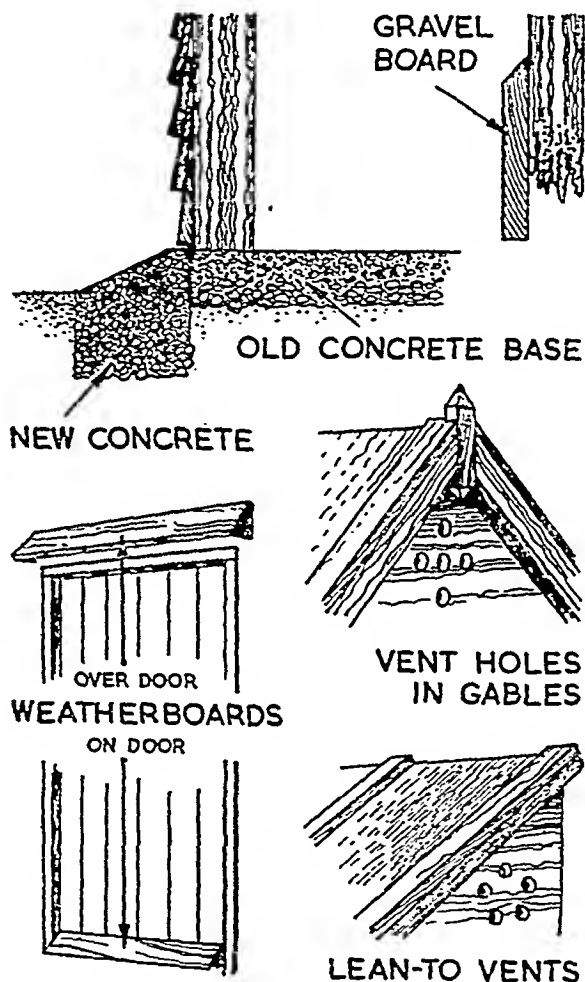


Fig. 71. Garden shed: keeping out water and letting in air

outdoor quality undercoating before finishing the job with a coat of white g paint. More information about exterior decorating of all kinds is given in a l section.

It is sometimes found that a piece of painted wood in a greenhouse has a h resin-content, which causes continual weeping, blistering and flaking of the pa thus exposing the wood to adverse weather conditions. The repair treatm

consists of baring the wood, using a paint solvent or blow-lamp (application of this tool is dealt with later in the sections on Decorating). The affected timber is then coated with an oil-bound distemper which when dry is followed by two coats of undercoating, followed by a finishing coat. This simple remedy will be found a complete cure for resinous outside timbers.

Garages: Bottom edge drainage for the sides of garages may be afforded in the same way as for garden sheds, described above, and in most cases it will be found advisable to fit a gutter to a garage roof. This may be zinc or asbestos, and light gutterings of most materials are obtainable from local builders' merchants. Alternatively a simple form of guttering may be made from 3-in. by 1-in. timber, fitted to a V shape as shown in *Fig. 72*. The guttering should run towards a suitable point of drainage, and this is best provided by a small water tub, which will preserve the soft rain-water for use in the garden.

Small holes in the roof or sides of garages covered with galvanized iron may be filled with cold solder or metal cement. The hole and the surrounding surface should be scraped clean and bright, the solder is then forced through the hole and shaped both inside and outside as illustrated in *Fig. 72*. After drying, the solder and the surrounding surface should be coated with a metal priming paint.

Cracked panels of flat asbestos may be repaired by backing the panel with battens as illustrated in *Fig. 72*. 2-in. by 1-in. softwood is suitable for the battens, which should be half-jointed if it is necessary to use crossing battens. The battens are fitted inside the panels and should be secured to the existing framework so that they rest firmly against the asbestos. With this done, small holes should be drilled each side of the crack, and the asbestos secured to the battens with galvanized screws. About 6 in. apart is a reasonable distance between the screw-holes, and these should be staggered each side of the crack (see *Fig. 72*).

The run or slope of a garage floor should be towards the doors, and if the level slopes the wrong way, so that water is carried into the garage, it will be necessary to re-surface the floor with concrete. Mixing and use of concrete is dealt with fully in the later part of this section.

The hinges of the garage doors, locks and bolts should be oiled at regular intervals and if any of the stiles or bars have opened where they join, repair should be carried out immediately this condition is noticed. The frames of most garage doors are secured with mortise and tenon joins, which are pinned with dowels, as illustrated on page 27. Any failure of this type of join necessitates removing the dowels and replacing them with new ones of slightly greater thickness. The door should be opened and wedged so that the weight is lifted from the joint and the old dowel pins are loosened and removed by driving them out with a nailpunch, using the head of the punch instead of the pointed end. The cracks between the two members should be coated with synthetic resin glue, as also should the new dowels, which should be driven home firmly, and the ends of the joints cut flush with the surfaces of the doors. If the joint is not of the dowel-

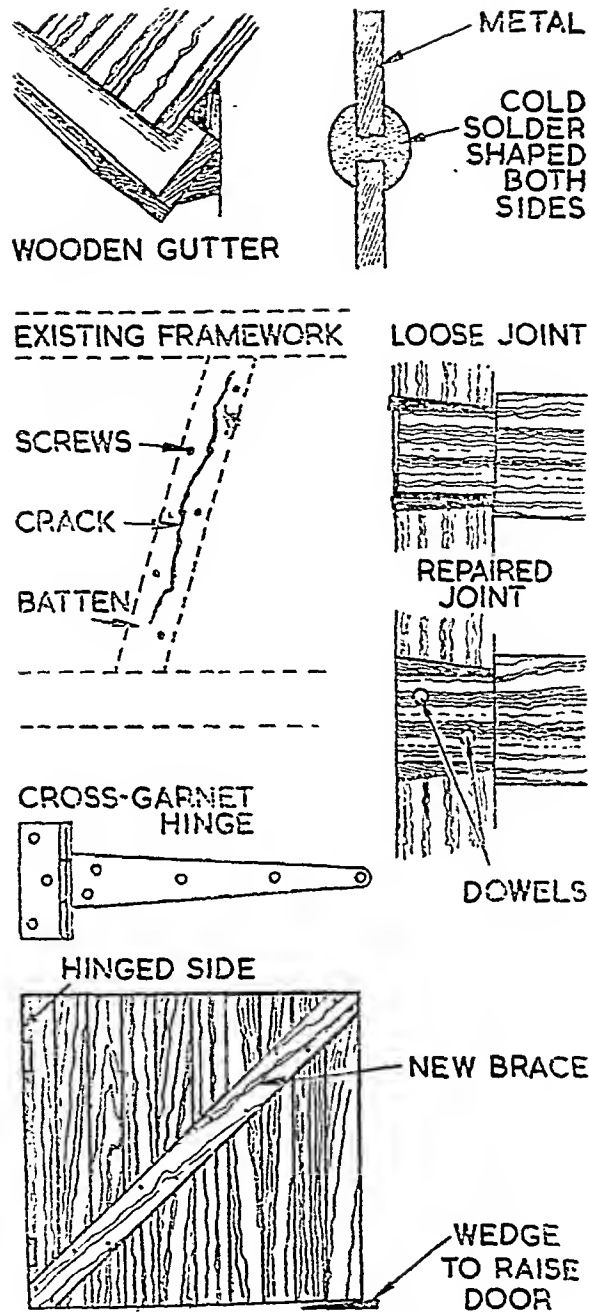


Fig. 72. Repairs to garages

pinned mortise and tenon type, it may be a wedge tenon (as illustrated in *Fig. 72*) and the loosening of the joint is due, in all probability, to the shrinking of the wedges. The door should be wedged open to slacken the weight off the damaged

joint. Any visible parts of the tenon should be coated with glue and the old wedges removed by hooking them out with the pointed end of a thin-bladed chisel.

With this done, the wedge under the door should be tightened to close the joint, which should be pinned with dowels, placing the pins as illustrated in *Fig. 72*. With the dowel pins driven firmly home, new wedges should be made and driven into the edge of the joint.

Garage doors are heavy things which may, after a period of time, sag and drag the bottom edge on the floor or apron of the garage. The sag may be taken up in the case of loosened butt hinges, by replacing the screws in the hinge one at a time with new screws of the same gauge, but $\frac{1}{4}$ in. to $\frac{1}{2}$ in. longer than the old ones. Alternatively, the butt hinges may be removed and replaced with rising butts, which raise the door off the floor as it is opened. The fitting of rising butts is dealt with on page 182 in the section on Carpentry.

If the hinges are of the flap, or cross-garnet type, illustrated in *Fig. 72*, the dragging door may be eased by removing the top hinges and replacing them slightly above the old positions with the flap of the hinge a little further over on the frame, away from the door where it meets the frame.

Garage doors that have weakened, and do not respond to any of the above treatments, should be fitted with an extra brace on the back of the door, as illustrated in *Fig. 72*. The brace runs diagonally across the door and the lower end of the brace is always at the hinge side. A suitable material for braces is 3-in. by 1 $\frac{1}{2}$ -in. softwood, which should be secured firmly to the garage door with 3-in. screws, driven through from inside. The brace should be attached with the garage door open and a wedge should be driven under the bottom edge of the door, to tighten any looseness in the frame, before attaching the brace. If none of these remedies completely eliminates drag, a very thin piece may be sawn from the bottom of the door.

FENCES

Rotted Boards and Posts: The most general types of repairs to boarded fences consist of measures to deal with boards that are rotted at the lower edges and failing with rotted posts. In the case of the former, if the rot is not too extensive, a gravel board may be fitted along the lower edge of the fence as illustrated in *Fig. 73*. Wet rot, unlike dry rot, is not contagious and it does not spread. The ends of boards may be trimmed to neatness, but if they are too fragile, they can be left untrimmed without fear of the rot spreading. The new gravel board should be secured to the fence rails, or into upright posts. 6-in. by 1-in. board should be a suitable size for a gravel board, for most fences, but the board may be wider if required. The gravel board should be well coated with or any other outside wood preservative, *before* it is fitted, and the top

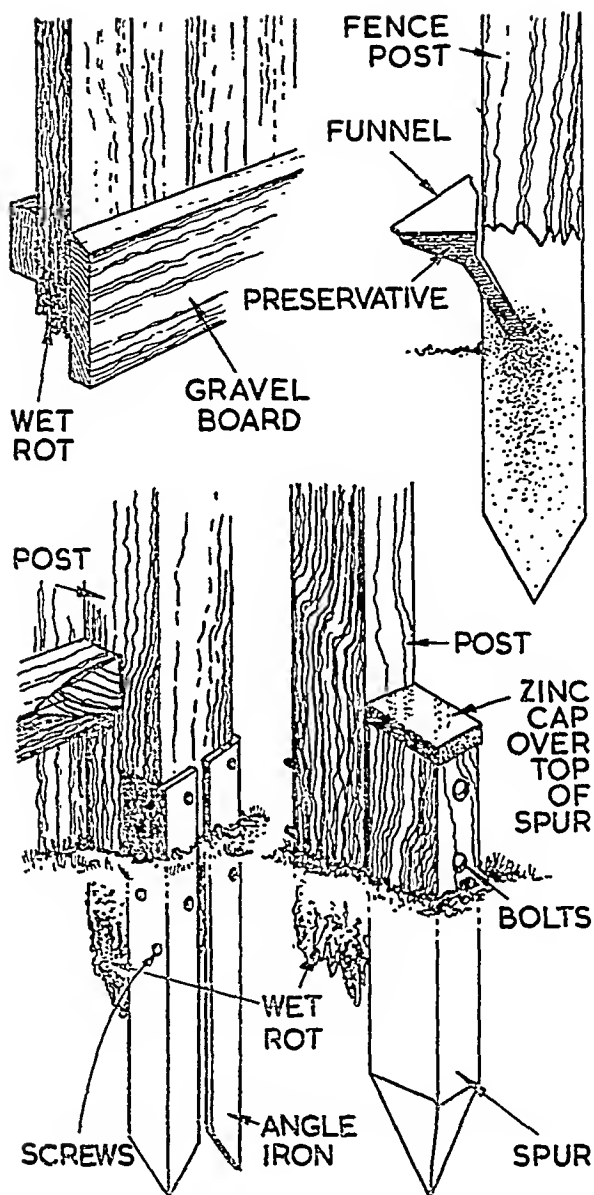


Fig. 73. Repairing rotted boards and post

edge of the board should slope downwards and outwards as shown in the illustration (*Fig. 73*).

The section of wooden fence-posts below ground level will rot and deteriorate with the passage of time. This however may be prevented by periodically saturating the base of the post with fresh creosote. To do this a diagonal hole should be

drilled into the post near ground level, as illustrated in *Fig. 73*. The hole should be large enough to take the spout of a small funnel. The treatment consists of inserting the funnel in the hole and filling it with creosote or any other wood preservative, leaving the funnel in place until the preservative is absorbed by the timber. This, however, is a measure of prevention and not a cure. If the post has rotted, and is dangerously weakened at ground level, it may be strengthened in one of two ways.

In the first method, metal angle-irons with sharpened ends are driven into the ground at the accessible corners of the post, as shown in *Fig. 73*. Galvanized screws are then driven into the post through holes drilled in the angle-irons. Metal angle-irons for this purpose are obtainable from most local builders' merchants, or they may be made from the sides of an old bed-spring.

Another way of reinforcing a weak post consists of strengthening with a spur. The spur may be of wood or concrete, and precast concrete spurs for this purpose are obtainable from local suppliers. The spur is inserted in the ground at the accessible side of the fence-post, and is then bolted through holes drilled through the unrotted part of the base of the post. If the wood spurs are used they may be preserved by covering the sloping top with a small piece of zinc folded over the edge, as illustrated in *Fig. 73*. To be fully effective the hole for the new spur should be as small as possible, removing as little soil as can be helped. This may be dug out with a small garden trowel, or a hole may be formed by ramming a spiked metal bar into the hole and swinging the top end to open the hole.

GATES

Maintenance and Repairs: Most of the damage to gates is caused by deterioration of capping on the top edge. This should be inspected at intervals and replaced if any cracking is noticed. The joints of gates are usually wedged tenons or dowel-pinned tenons, and these may be repaired and tightened as previously described in this section.

A dragging gate can be dealt with in the same way as a garage door, described on page 131. A gate can be made to close automatically by fitting a return spring of the type illustrated in *Fig. 74*. Or by removing the bottom hinge, also as illustrated in *Fig. 74*, so that the force of gravity causes the gate to swing shut if it is left open. The working metal parts of the gate should be kept rust free and oiled at regular intervals. The painting of gates is dealt with in the section on Exterior Decorating. Wooden gate-posts rot where they meet the ground in the same way as fence-posts. They may be treated to prevent rot as described above by internal flooding of the base of the post, with a wood preservative, at regular intervals. It is not advisable to fit spurs to gate-posts that have rotted through at the base. The best method of treatment is to remove the posts and replace them with new ones. The new posts will be most firmly seated if the stumps of

GATES AND PATHS

the old posts are drawn cleanly out of the ground without digging them out. To remove the stump of an old gate-post, hammer a stout nail into each side of the stump as shown in *Fig. 74*. A length of stout wire or chain should be fastened over the nails to form a loop. The end of a length of stout timber is passed under the loop (see *Fig. 74*) and this, used as a lever, is rested on a fulcrum of bricks. With the fulcrum in place, pressure should be exerted on the free end of the timber to ease the stump from the ground. As the stump rises, the fulcrum should

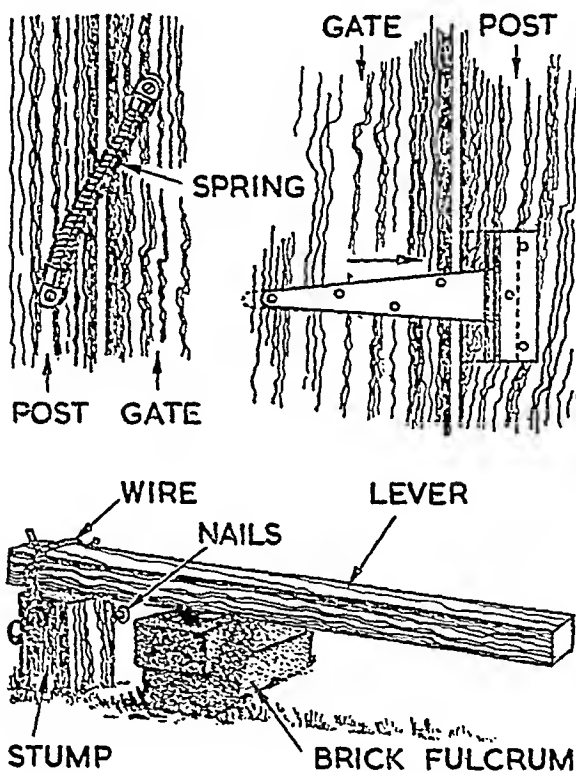


Fig. 74. Repairing gates

be moved nearer the stump-end of the lever to maintain sufficient pressure to expel the stump cleanly from the ground. The base of the new post should be well coated with an outdoor wood preservative before inserting it in the old stump hole. The best method of ensuring protection consists of placing the base of the new post in an old bucket or an oil can, and partly filling the container with the preservative, allowing the base to soak for several days, before placing it in position. Oak is the best timber to use for gate-posts. As an alternative these may be made from concrete and the use of concrete is explained later in this section.

PATHS

Resurfacing: The most usual types of paths are gravel or concrete. Gravel paths require a great deal of attention in weeding, raking and rolling them. Concrete paths are more permanent. As an alternative to these, 'Colas' paths are very attractive and hard-wearing. A Colas surface may be given to an existing gravel or to an earthen path, if the surface is well packed down and hardened. Colas is a by-product of coal, and this is obtainable in liquid form quite cheaply from local gas companies. The surface for treatment is simply prepared by wetting it and brushing it with a soft sweeping-brush; this removes all loose surface particles and presents a good base for the Colas. The Colas is applied with a watering-can, with the rose removed, and it may be thinned with water up to 50 per cent. of the liquid bulk. The Colas is poured thinly on the prepared surface, and is then brushed again, using a soft sweeping-brush. The direction of the sweeping should always be towards the untreated part of the path. While the Colas is still wet and tacky, it should be covered with small shingle of not more than $\frac{1}{4}$ in. (The size of shingle is determined by the mesh of the sieve through which it is riddled.) As an alternative to shingle, very coarse sand may be used. The surface of the Colas is thinly covered with the shingle, which is best spread with a shovel by throwing the surface material with a swinging, sweeping movement. The path should be left to harden for several days and then may be lightly swept to remove any of the loose covering. Paths of this sort are best resurfaced at intervals of from two to three years. Edges of paths, Colas-ed, should be protected with thin strips of board bedded and pegged into the soil. These may be removed after the Colas has hardened.

It is important when laying paths of any kind to ensure that surface water can run off easily and will not collect into puddles. This is especially necessary in winter months, when there is a danger of freezing. The run of a path may be determined with a spirit-level placed on a straight edge, supported by pegs driven into the soil at the sides of the path. Garden paths at all times should be given a slight camber, by raising the middle of the path slightly above the level of the edges.

CONCRETE

Home handymen of all grades of experience will find concrete an invaluable material for many outdoor projects. It can be used for making garden paths, floors for greenhouses, sheds and garages, aprons for garages, run-ins, garden walls, pergolas, garden pools and rockeries, etc.

Materials: Concrete contains three main ingredients; the most important of these is cement. There are many different types of cement; the one in most general use is Portland cement. This is a fine grey powder made from crushed stone.

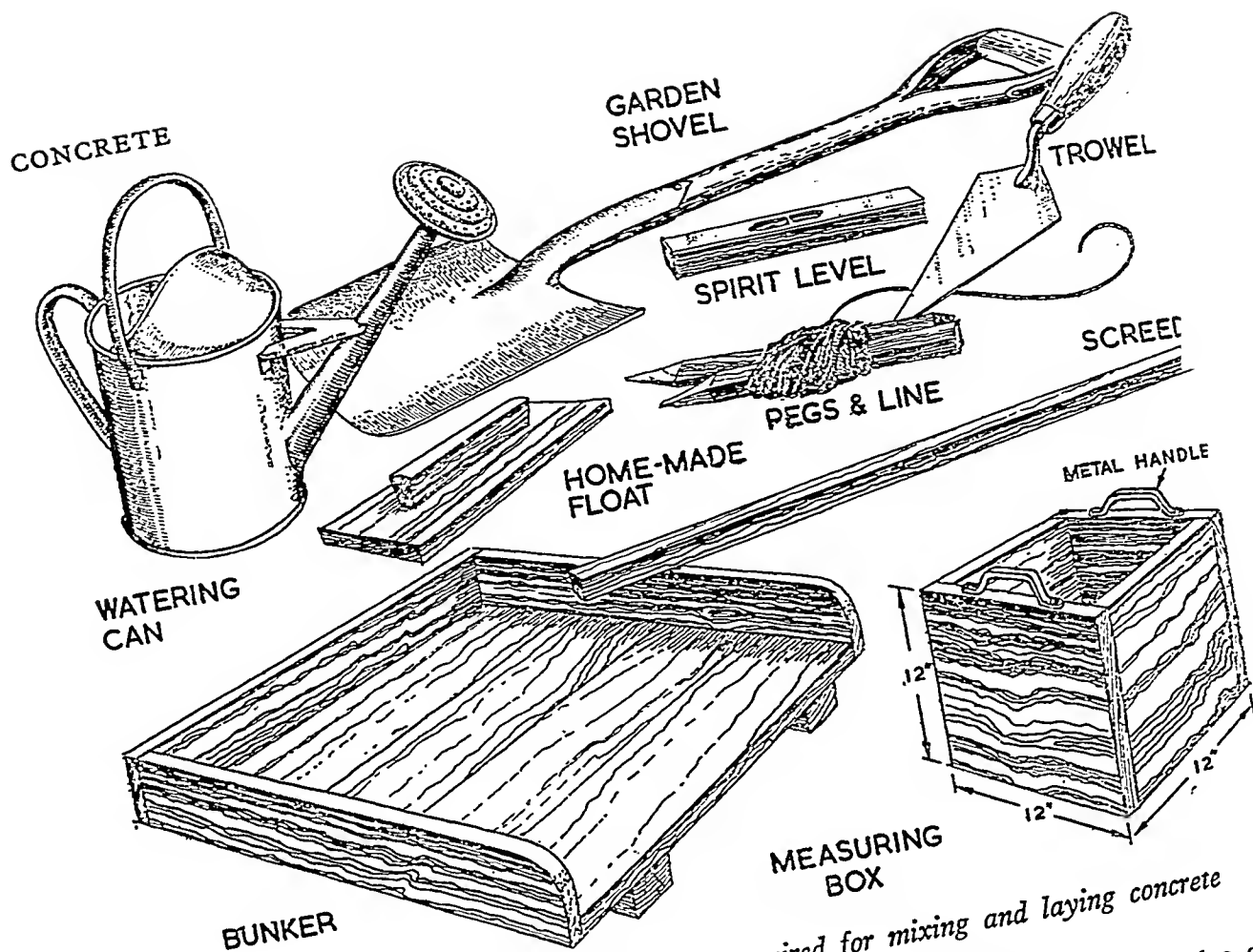


Fig. 75. Tools and equipment required for mixing and laying concrete

It is supplied in stout paper bags, in quantities of $\frac{1}{2}$ cwt., 1 cwt. and 2 cwt., and this material is very inexpensive in relation to its manifold uses and long life. The second ingredient of concrete is known as aggregate. This may consist of granite chips, crushed stone, shingle, sand or ballast—the latter being a mixture of shingle and sand. The aggregates are used to strengthen the mixture and to save costs—the price of aggregate being much lower than cement powder. The aggregate varies in size according to the job. For most purposes a $\frac{3}{4}$ -in. shingle is used. $\frac{3}{4}$ in. is a term of measure and is applicable to the size of the screen mesh of the sieve through which the shingle is riddled, and this simply means that no piece of shingle measures more than $\frac{3}{4}$ in. either way. The sand used as an additional aggregate with shingle should be coarse and sharp, the grains being anything up to $\frac{1}{8}$ in. Both sand and shingle are obtainable from local suppliers and they are supplied as 'washed' ready to use. The third ingredient for making concrete is cold water. The water is used to soften the dry ingredients, and to mix them

in a homogeneous mass. The bulk of the ingredients are carefully measured according to the type of concrete being made. The action and size of the various ingredients are such that when they are mixed, the concrete is solid and strong. The fine aggregate—the sand—is well mixed with the coarse aggregate, so that in the finished concrete there are no voids or hollows. The size of the cement powder is such that it fills all the spaces between the coarse and the fine aggregates and bonds them. Well-proportioned and evenly mixed concrete is very strong. Concrete may be further strengthened by reinforcing it. This may be done by using wire chicken netting in the case of small jobs, or expanding netting or iron rods for larger jobs. The use of reinforcing materials will be explained later in this section.

Tools and Equipment: The tools required for mixing and laying concrete are few and simple. These are illustrated in *Fig. 75*. The tools consist of a watering-can fitted with a fine rose, and garden shovel for turning the mixture and for laying it on the site. Also required are a trowel and a float. The trowel is an ordinary bricklayer's trowel with a blade of about 7 in. The float may be a steel float of the type used by plasterers, but for most jobs the handyman can make a simple wooden float by nailing a block of wood, which forms a handle, to a flat piece of wood (*Fig. 75*). Also required is a screed, which is simply a long piece of wood with a straight edge. A small spirit-level, of the type illustrated in *Fig. 75*, is required, a line of stout thin cord and some pegs. The concrete may be mixed on an existing concrete surface, providing this is well washed down after each mixing, or—and it may be more convenient for use close to the site—the material may be mixed on a bunker. The bunker which is illustrated in *Fig. 75* consists of 6-in. by 1-in. planks, firmly nailed to 3-in. by 1½-in. battens on the underside, and three sides of the bunker are edged to make a shallow tray, as shown in *Fig. 75*. The advantage of this mixing platform is that it may be easily transported so that the material is mixed near the site where it is to be used.

To mix concrete of maximum strength it is essential that all the materials are clean and that the cement is dry. The cement should be stored by raising it off the floor of a shed or outhouse, and it is a good plan to buy only sufficient cement for the job in hand. The aggregates, both fine and coarse, should be 'washed' quality and they should not be contaminated with soil or dust. The water also, which is used for concrete, must be clean and fresh. The best results are obtained when the concrete is used within 30 minutes of mixing it. It is not necessary to mix all the cement for the job in hand, if the bulk cannot be handled and laid within a reasonable time of setting. To ensure that the material is fresh when laid, the handyman should be able to estimate the quantities required for the job. In this way the dry materials can be mixed in bulk, and a smaller part of the dry mixed materials wetted and turned with water, so that an easily manageable amount of concrete is mixed at one time. A simple method of estimating quantities is described below.

Estimating: The example given below is for the floor of a small garden shed, but the same method of estimating quantities may be applied to any other form of concrete structure. The size of the floor of the example garden shed is 4 ft. wide by 6 ft. long, and the thickness of the floor is 4 in. The square footage of the floor is therefore 24 sq. ft., and if this is divided by $\frac{4}{12}$ ths (the 4-in. thickness) the cubic capacity of the floor is 8 cu. ft. Assuming that a reasonable proportion of ingredients for this type of job would be one part cement to two parts sand, with four parts aggregate, the total parts of the ingredients would be seven, and this figure is obtained by adding the one-two-four parts of the total mixture together. Therefore, if the cubic measurement of the floor is 8 cu. ft., and there is a total of seven parts of the ingredients, the cubic footage of each part in their correct proportion is as under:

Cement	(one part)	$1\frac{1}{7}$ cu. ft.
Sand	(two parts)	$2\frac{2}{7}$ cu. ft.
Aggregate	(four parts)	$4\frac{4}{7}$ cu. ft.
Total	seven parts	8 cu. ft.

From this simple example it will be seen that it is an easy matter to estimate all the ingredients for a job of any size, even though the ratio of ingredients may vary.

It has previously been explained that aggregate is added to the mixture to increase the bulk, thereby reducing the cost, but of course there is a point beyond which the addition of more aggregate would weaken the concrete, and the proportion of ingredients will vary according to the type of job being done. A table of suitable mixtures for different jobs is given on page 147.

Measuring and Mixing: In order to mix the ingredients in their correct proportions, when estimating the cubic footage of a job, it will be necessary to use a measuring device. A very simple measure for this work is illustrated in *Fig. 75*. This is a bottomless box with square sides, each measuring 12 in. each way. A pair of metal handles is screwed to the top edges of the box at opposite sides. The cubic capacity of this measuring box is 1 cu. ft., therefore, if the box is placed on the mixing site, and filled with either of the solid ingredients to the level of the top edges, the box may be lifted by the handles, leaving 1 cu. ft. of the ingredient being measured on the mixing site.

There are two ways of using concrete for garden projects. The concrete may be laid *in situ*—this of course means that the unset mixture is placed in the site position of the structure—or the concrete may be shaped into preformed sections away from the site, and in this case it is made in the form of bricks or slabs. Whatever the application of the material and the proportion of the ingredients, there is a correct method of mixing concrete to obtain maximum strength. It has been explained that the concrete may be mixed on an existing concrete surface, providing it is swilled down with water immediately after the material has been used, or that it can be made on a bunker, which of course may be placed near

the site where the concrete is to be used. The first part of mixing consists of spreading the sand in a flat layer on the mixing site. The measured quantity of cement should then be spread evenly on the layer of sand. The mixture of sand and cement should then be turned over with a shovel, until the mixed ingredients are of even colour throughout—that is without streaks of yellow sand or grey cement. It may be necessary to turn the dry ingredients three or four times before they are properly mixed. The mixture of sand and cement is then spread over the mixing site and the measured aggregate is spread evenly over the previous mixture. With this done, the heap should again be turned over—at least three or four times—until the aggregate has been distributed evenly. Thoroughness in this part of the work is essential—the more thorough the mix, the stronger the concrete.

The dry ingredients are then sprinkled with water. To do this properly the ingredients should again be spread in an even layer. Only sufficient water is added to make the mass plastic. A good mixture, when squeezed in the hand, should retain its shape and be slightly moist on the surface, without dripping water. The water is best added with a watering-can fitted with a fine rose, and only a small amount of water should be added at a time, the heap being thoroughly turned after each addition of water. It is again emphasized that only the minimum amount of water necessary to make concrete workable should be added to the dry ingredients. The concrete should be used within 30 minutes of mixing, and after laying the concrete should be matured. This is done to prevent too rapid drying which will weaken the material. Maturing consists of keeping the concrete dampened for four or five days after it has been laid, and this is especially necessary in hot summer weather. The best method of maturing concrete is to cover it with wet sacks, and to redampen the sacks by sprinkling them with water from a rose-fitted watering-can as the sacks dry out. In addition, to protect the concrete against the heat of the sun, the covering of sacks will prevent drying by strong winds. Concrete should not be mixed or laid in frosty weather if this can be avoided, but if this cannot be avoided an anti-frost solution or accelerating solution should be added to the water with which the concrete is mixed to speed up the time of drying. The treated concrete is hard enough to walk on within 24 hours of mixing. However, in normal circumstances, it should not be necessary to accelerate setting, and the concrete should not be walked on for at least seven days after laying. In addition to the use of additives for anti-frost and accelerating, ordinary concrete mixed with Portland cement may be rendered waterproof by the addition of waterproofing powder—several proprietary brands are available—to the cement powder. Also for special jobs, such as swimming-pools, a waterproof brand cement may be obtained.

Cement work in the garden may be brightened up by using coloured concrete, and concrete made from ordinary Portland cement may be tinted by the addition of a colouring powder. These powders are obtainable from local builders' mer-

chants and the proportion of powders to use with different mixtures is printed on the colour-powder containers. Container instructions should be carefully followed to obtain good results. In this way, the concrete used in the same job may be differently coloured. For instance a path can be made of small concrete slabs which can be constructed of batches of slabs, each one made in a different colour. In the case of a garden wall, colour may be added by colouring the mortar, or by using coloured cement bricks. To clarify some uses of concrete by the home handyman, some simple jobs are explained below.

Making a Concrete Path: Care should be taken in siting a concrete path, or any other structure of concrete, to ensure that it is being laid in the most suitable position. Obviously large slabs of concrete cannot be moved once they have been laid. After deciding the siting of the path, the sides should be marked out. This

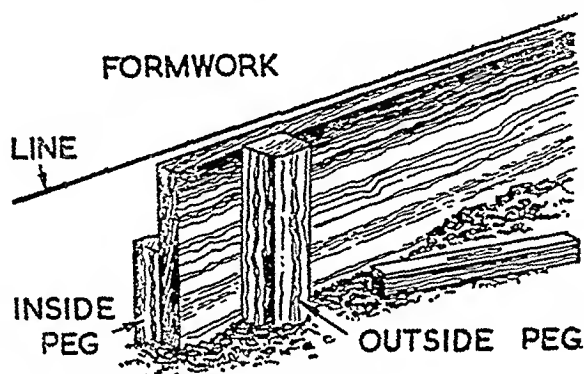


Fig. 76. Formwork for laying concrete

may be done with pegs and a garden line. A reasonable thickness for a garden path would be 2 in. to 3 in., providing the under surface is firm. If the ground is loose, a layer of earth to the depth of about 2 in. should be excavated, and the excavation filled in with brick rubble, or gravel, which should be firmly rammed into the soil. With this done the edges of the path may be defined by the use of formwork. This simply consists of pieces of wood which are fixed in position with wooden pegs, as illustrated in *Fig. 76*. It will be seen from the illustration that the pegs inside the formwork are knocked down well below the surface of the shuttering boards. The boards should be aligned with the cord or line used for marking out the site, and the boards should be levelled with a spirit-level. If it is necessary to alter the level of a path, as in a sloping garden, this is best done by inserting steps at intervals rather than sharply sloping the formwork. It is not necessary to completely shutter all the edges of the path at one time. When the section inside the available formwork has been filled, the formwork may be moved, after the cement has set off, and re-positioned for the work of completing another section of the path. The inside surfaces of the formwork are best coated with lime-wash to prevent the concrete sticking to the boards.

In addition to the shuttering having a level run, the formwork should also be level across the site, the path being slightly cambered to the middle to allow rain-water to run off.

With the formwork prepared the concrete should be mixed as previously explained, and labour will be saved if the mixing bunker is placed as near the site as possible. A good strong mixture for garden paths consists of one part cement to two parts sand and four parts shingle. If ballast is used—ballast is a mixture of sand and shingle—the proportion of the mixture can be one part cement to six parts ballast. Mix only as much concrete as can be laid within 30 minutes of mixing at a time. Immediately after mixing the concrete should be laid between the formwork. This is done with the mixing shovel, and the concrete should be roughly levelled and tamped down within the formwork with a rake. Each batch of the mixture should be laid and finished before the next batch is knocked up. The surface of the path may be roughly finished or it may be topped up with a smooth mixture of one part cement and three parts sand. In most cases, it will be found best to finish a garden path without a top facing, which may become slippery in icy weather. The path is finished with screeding and floating. The screed is a piece of wood which is slightly hollowed in the middle of its length to form a raised camber in the middle of the path. The screed is used to level the path and the surface of the concrete is gone over twice; the first movement consists of resting the ends of the screed on the formwork at the sides and working along the concrete with a chipping movement; when this is done the screed is again worked over the surface this time with a slight see-sawing movement of the screed, to fill in any pits or small irregularities in the path. The screeded finish is suitable for most types of garden paths. A better surface may be given by working over a path, as the concrete commences to set off, with a float. The float is drawn lightly over the surface of the concrete to smooth it and the inexperienced handyman will soon get the feel of the job after a few practice movements of the float. With the path laid and the surface finished, the concrete should be covered with wet sacks. Newspapers will do if sacks are not available, and these should be left undisturbed for about four days, when the sacks or newspapers (which should be re-dampened throughout the setting period) and the formwork may be removed.

Concrete Floors: Floors of garden sheds, greenhouses, garages, etc., are laid in the same way, and a note of suitable mixes is given in the table of quantities. In the case of floors for outbuildings, the formwork should be arranged so that the level of the floor, which should not be cambered, runs downwards towards the door. The run need only be very slight, and its main purpose is to prevent rain-water entering. The floor should extend 6 in. beyond the sides of the building.

Making of Concrete Slabs: Instructions for making a garden path, given above, describe the laying of concrete *in situ*. An alternative method of using concrete for a path is by making slabs. These concrete slabs may also be used for making



Fig. 77a. Making concrete slabs inside a formwork as described on pages 141-142

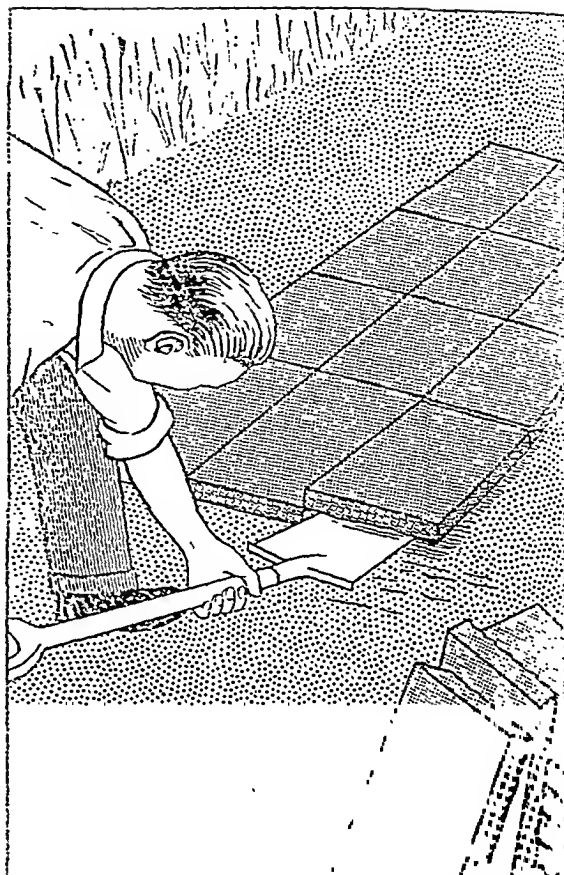


Fig. 77b. When ready the slabs are lifted with a spade and moved to the required position

garden walls, terraces, edgings to rock gardens, garden pools, etc. One of the easiest methods of making slabs of varying dimensions is between formwork. A site for manufacture of the slabs should be levelled off, and the formwork set up to enclose an area convenient for working. A reasonable area which can be easily handled at one time, is one measuring 3 ft. by 4 ft. Care should be taken to level the edges of the formwork all round, and to ensure that the corners are square. The inside of the formwork should be coated with lime-wash to prevent the concrete from sticking to the wood. The ground inside the formwork should be levelled with a rake, and the depth of the formwork need only be 2 in. For making small slabs the depth is reduced by a half, with a sand bed which should be laid inside the formwork and raked level to a depth of 1 in. With this preparation done, the concrete may be mixed and placed in the formwork. A suitable mixture for making small slabs is one part Portland cement to three

parts sand, and the concrete may be tinted by the addition of a colouring powder as described above. Each batch of slabs that is made at one time in the formwork may be differently coloured. The concrete should be thoroughly mixed and only sufficient water should be used to make the mass pliable. Lay the mixed concrete inside the formwork, level it roughly with a rake, and finish the surface with a screed. The screed used to make concrete slabs should have a straight edge and should not be hollowed to provide a camber. The screed should be worked twice over the surface of the concrete, once with a chopping action to level the mixture inside the formwork, and the second time with a see-sawing movement with the ends of the screed resting on the top edges of the formwork. The surface may then be smoothed with a wooden or metal float as previously described. The large slab of concrete is then cut into small slabs. This is done as illustrated in *Fig. 77a* which shows how a plank with straight edges is placed on the concrete, and the thickness of the concrete is then cut through with a trowel. The cutting should not be done until the concrete commences to stiffen and set off. If it is done too quickly after the concrete is laid, the cut edges will rejoin and the slabs will not separate. With the small slabs neatly cut to shape, the concrete should be covered with wet sacks and left three or four days to harden. The slabs are then lifted with a shovel as illustrated in *Fig. 77b*. When they have been lifted and separated the small slabs should be stacked on edge and left for as long as possible before using them. In this way batches of slabs may be made at weekends, until sufficient slabs have been accumulated for the job for which they are intended. If the pieces are intended for use in a path the edges may be irregularly cut to form crazy pavement instead of sliced into rectangular slabs. When used for paths the slabs or pieces of crazy paving should be laid on a foundation of freshly mixed concrete—a suitable depth is 1 in. The cracks between the pieces may be filled with mortar, or left open.

Concrete Bricks: Concrete slabs for bricks, paths or walls, may be cast in a mould, as an alternative to shaping them in formwork as described above. A suitable mould is illustrated in *Fig. 78*. This consists of softwood sides with divisions. The wooden mould should be constructed so that the parts may be easily detached to release the concrete after it has hardened. In use the formbox is placed on a piece of *level* ground, over which has been spread three or four layers of newspapers. Concrete in the proportions of one part cement to three parts sand is then mixed and tamped into each section of the mould, the top of which should be levelled off with a screed. The usual protection should be given against adverse weather conditions, by covering the concrete and mould with wet sacks. When hard the blocks are removed by loosening the formwork and this will be made easier if the inside edges of the wood are coated with a limewash.

Building a Garden Wall: Small concrete slabs or bricks of the type described above are very suitable for building low garden walls and for making garden steps. The site of the wall should be defined with lines and pegs and the foundation

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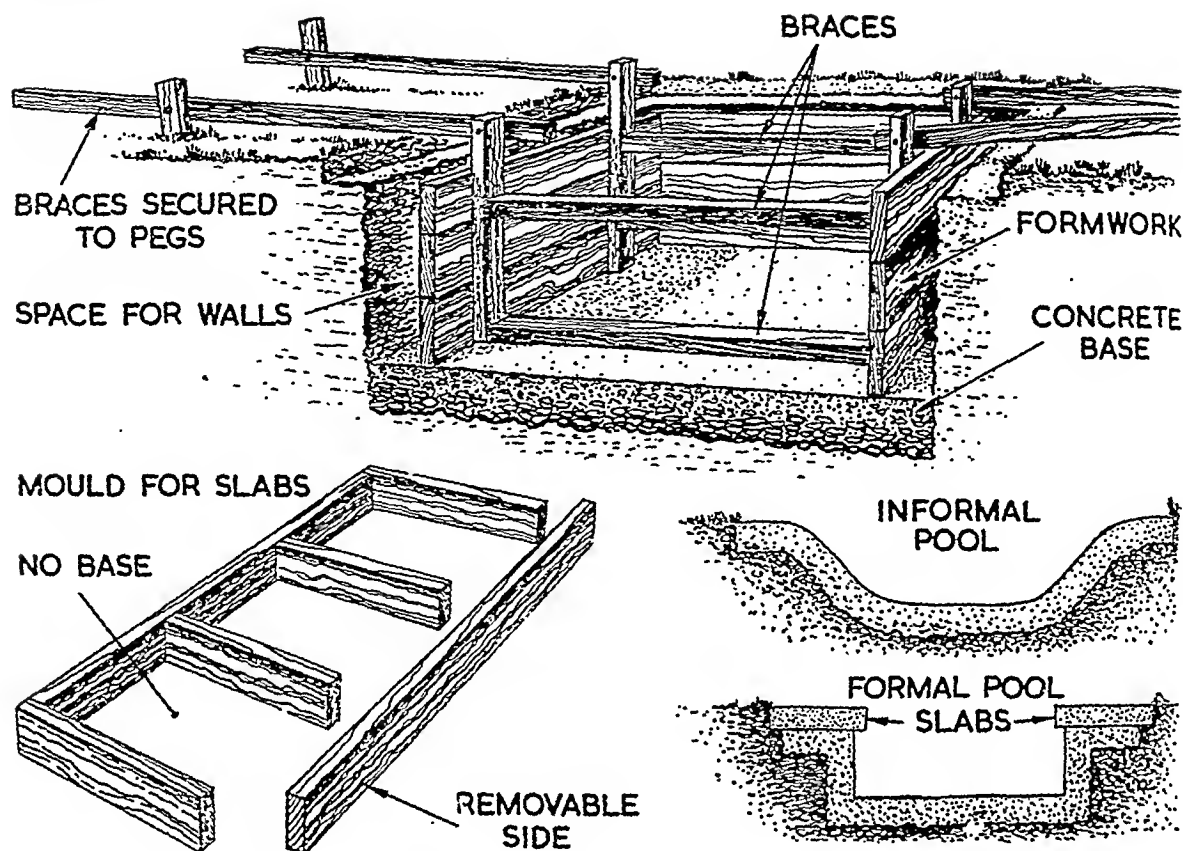


Fig. 78. Moulding concrete slabs and cross-section of garden pools

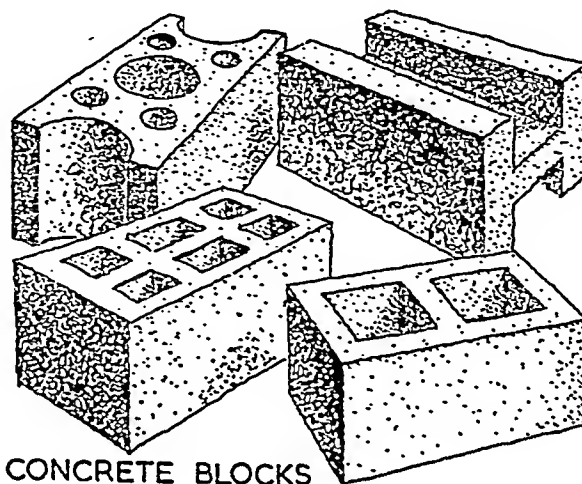
should be prepared by digging a shallow trench for a depth of about 4 in. If the ground is very hard and firm the depth of the trench may be reduced. The 4 in. should be filled with a foundation material of brick rubble or gravel, which should be well rammed into the soil, leaving about 1 in. to 2 in. for a layer of concrete on which the wall is built. If the sides of the trench are firm and even, it will not be necessary to erect formwork before mixing the foundation layer of cement, using one part cement, two parts sand and four parts coarse aggregate. The concrete slabs are laid on the foundation after it has set off, and the wall is built with a mortar made by mixing one part cement and three parts sand. Before the slabs are laid they should be thoroughly wetted, either by dousing them with water from a hose-pipe or soaking them in a bucket of water. This should be done immediately before they are laid. The thickness of mortar between the joints of the slabs should be about $\frac{1}{4}$ in. During the erection of the wall a spirit-level should be used to ensure that the level of rising courses is even and the level should also be used to ensure that the wall is perfectly upright. The joints of the slabs should be staggered.

Concrete Garden Pools: As with any other concrete job, care should be taken in planning siting. There are two types of garden pools, both of which are quite easy for the handyman to make. One is an informal pool, which is best suited to informal gardens. The other is a formal pool, rectangular in shape with clean-cut outlines. The informal pool is simply made by digging a saucer-shaped hollow in the ground and excavating the soil to a depth suitable for the requirements. Concrete is then mixed and spread inside the saucer-shaped depression to a thickness of roughly 3 in. to 4 in. The cement for the concrete may be of waterproof quality, or the concrete may be waterproofed by adding a waterproofing powder. The surface of the concrete may be roughly shaped with a shovel, and the shape is then covered in the usual way with wet sacks or newspapers. The concrete is left to harden off for three or four days after which the covering should be removed. The pool is then filled with water. A cross-section of an informal pool is illustrated in *Fig. 78*, which also shows a section of a formal pool. The formal pool is rectangular in shape, and the soil is excavated to the depth required, after siting this pleasing garden feature. It should of course be appreciated that the site should be levelled. The formal pool is made in two parts. The bottom or floor of concrete to a thickness of 3 in. is laid before the sides are made. A suitable mix for the concrete is one part waterproof cement to three parts sand; or Portland cement may be used, if waterproofing solution is added. The floor should be laid and smoothed over, as previously explained. To make the sides of the pool it will be necessary to erect formwork. If the sides of the excavation are firm and solid, it will only be necessary to erect inside formwork to allow a wall thickness of 6 in. The method of fitting the formwork is illustrated in *Fig. 78*, and the inner surfaces of the formwork should be coated with lime-wash to prevent adhesion of the concrete. With the formwork firmly positioned, the concrete for the sides, which should be of the same proportions as the mixture for the bottom of the pool, should be knocked up and laid inside the shuttering. If it is not possible to mix all the concrete in one batch, each batch, as it is mixed, should be tamped inside the formwork. The level of the walls will be raised all round gradually, with succeeding batches of freshly mixed concrete. Although the walls may be built up of separate batches of concrete all the work should be done in one day, and successive batches should quickly follow each other. The illustration (*Fig. 78*) shows how the top edge of the pool may be finished with concrete slabs of the type previously described. The slabs are cemented in position to form an attractive edging that overhangs the sides of the pool.

Rock Gardens: Naturally rock is best for making a rock garden, but when this is difficult to obtain, artificial rocks of concrete can easily be made. The rocks are made in moulds, and the moulds are irregularly shaped holes dug in garden soil. The inside of the excavation should be slightly roughened by scraping it with a stick, and the inner surface dusted with sand before mixing and placing the concrete. A good mix for making concrete rocks is one part sand to two parts

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cement and four parts shingle. Several rocks can be made at one time. The concrete should be laid immediately it has been mixed. To lighten the rocks and cut down the cost, armatures may be used. These armatures simply consist of old jam jars, or tins, and they are used in this way. The bottom of the cavity should be lined with concrete before the armatures are placed in position. The remainder of the concrete is then tamped into the hole so that the armatures are completely enclosed. Leave the rocks to harden for at least a week, before digging them out with a spade.



CONCRETE BLOCKS

Fig. 79.

The instructions above cover some of the uses of concrete work by handymen. There are many more applications of this versatile material, and those given above should be sufficient, when carried out, to make the handyman proficient in the use of concrete. One additional use for concrete is given below.

Concrete Blocks: Concrete blocks have a multiplicity of uses in the garden, for making coal-bunkers, garages, bases of greenhouses and other outbuildings. The blocks may be made of a concrete mixture, described above, or a special lightweight concrete can be made, by using crushed coke, or breeze, as a coarse aggregate. Whenever lightweight aggregate is used it must be clean. The blocks are cast in solid sections, although the heavier, denser concrete, as previously described, may be cast in the form of hollow blocks. Some suitable shapes and dimensions for both types of blocks are illustrated in *Fig. 79*.

Walls made of these blocks are of single block thickness, and they should be based on foundations consisting of a thickness of concrete laid in a trench; which should be 3 in. wider each side than the width of the blocks. The depth of the trench will vary according to the structure. A suitable depth for a small garage built on firm ground would be 6 in. of concrete on a substantial layer of ballast or brick rubble. The concrete for the foundation can be made of one

part Portland cement and three parts sand, to six parts aggregate, and additional strength may be given to the foundations by reinforcing them. A suitable reinforcement is $\frac{1}{4}$ -in. mild-steel rods, and many pieces of metal which accumulate in the garden may be used in reinforcing foundations—such as old water and gas pipes and tightly rolled pieces of wire netting. The foundations should be left to thoroughly harden before the walls are raised. A suitable mortar for light-weight or solid blocks is one part Portland cement to three parts sand. The thickness of the joints between the blocks need not be more than $\frac{1}{4}$ in. The blocks are laid with a trowel and as each row is laid the course should be checked for vertical and horizontal level, with a spirit-level. The upright joints of the blocks should be staggered to strengthen the wall. The blocks for building purposes can be made in small batches, and they should be stacked on edge and left to mature for as long as possible before using them.

TABLE OF INGREDIENTS FOR MIXING CONCRETE FOR VARIOUS PURPOSES

Suitable for	Approximate Proportions (buckets)			Approximate Proportions using Mixed Ballast (buckets)		Water to Add (buckets)
	Cement	Sand	Shingle	Cement	Mixed Ballast	
Foundations, footings to walls, fillings for garden roller	1	$3\frac{1}{4}$	5	1	6	Just $\frac{5}{8}$ over
Garage floors, thick walls	1	$2\frac{1}{2}$	4	1	5	$\frac{5}{8}$
Paths, tanks, pools, pits, steps, garden frames, incinerators	1	2	3	1	4	Just $\frac{5}{8}$ under
Work of thin section, fence-posts, precast steps, and kerbs	1	$1\frac{1}{4}$	2	1	$2\frac{3}{4}$	$\frac{1}{2}$
Concrete rocks, bedding for slabs, filling for pavements	1	4	—	—	—	$\frac{5}{8}$
Crazy paving, formal paving, small slabs, pergolas	1	3	—	—	—	$\frac{1}{2}$
Rendering to garden pools and tanks	1	2	—	—	—	$\frac{1}{2}$

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Nature of the work—graded projects. Materials: Use of softwood, plywood and hardboard—use of prepared timber—squaring face and edges—marking timber—planing—squaring ends—cutting joints. Making and Fitting Shelves: A single kitchen shelf—preparation and fitting—use of shelf-brackets—fitting shelves on battens—corner shelves. Fitting Shelves in a Recess: Ends and sides—cutting housed joints—fitting shelf-ends to walls—use of brads—making a stopped housing joint. Fireside Cupboard: Framework and cupboard doors—making halved joint—covering the frames. Hinging a Cupboard Door: Use of butt hinges—marking and cutting recesses—fitting and hanging—use of stops—catches and handles. Rebated Cupboard Doors: Improved appearance—cutting rebates—use of a cutting gauge—cutting rebates with a bench saw—use of a rebating plane—assembling the frames—covering. A Built-in Wardrobe: Shelf-fitted recess—constructional details—making and fitting the parts—suspension bar—covering the frame—finishing. Paperhanging Table: Making a folding table—dimensions and construction—hinging and finishing. Covering Panelled Doors: Use of flush panelling—preparation—re-covering—finishing—alternative method. Making Pelmets: Alternative types—making and fitting a pelmet board—use of shelf-brackets—box pelmets—use of sc roll-saw—dealing with curved corners—bending plywood—making a pelmet wardrobe. Bathroom Steps: A set of steps for children—construction and materials—assembly and finish. Bathroom Cabinet: Storage for first-aid materials—construction of a cabinet—details of back and door—attachment of mirror—stocking the cupboard. Making a Saucepan Rack: Details of parts—use of distance pieces—fitting and finishing. Larder Screens: making a fly-proof window screen. A Kidney-shaped Dressing-table Top: Simple conversion jobs—suitable bases—material for top—preparation—cutting the top to shape—fitting top to stand—finishing. Household Steps: Construction of sides and treads—cutting angles—use of adjustable bevel—assembling—making the trestle—trimming the legs. Window-seats: Making the frames—details of construction—back, sides and front—fitting the top—facing the front—finishing treatments. Cold Frames: How to make sectional-unit frames—materials and assembly—details of top light—fitting and finishing. Use of Rising-butt Hinges: Purpose and fitting.

THE term 'carpentry' is used broadly in this book to describe easy-to-do pieces of woodwork that can be carried out by the home handyman of average ability, using only the simplest of tools and materials. The work described is of such a nature that it does not require a high degree of skill in cutting and shaping the wood and assembling the shaped parts, to make a wide range of useful articles for the home. Although only a few simple projects are described in this section, they have been selected to include working processes that may be applied to many other woodwork jobs about the house. This section does not include a series of set exercises which have to be laboriously practised before the handyman can

enjoy the experience of making his first project. Instead the jobs are graded so that the handyman-carpenter can acquire the basis of knowledge required while turning out a number of useful pieces of work. Other pieces of work of a more advanced nature, that do require more time spent on their manufacture—mainly furniture—are described in the section entitled 'Cabinet Making'.

The main tools and equipment required for the carpentry projects which follow have already been described and illustrated in a previous section, 'Handyman's Workbench and Basic Tool Outfit'. Any additional tools and equipment required will be mentioned in the following instructions as their use is described.

Materials: All the projects described in this section may be constructed with softwood, with the additional use of plywood and hardboard. Plywood is a sheet material composed of laminated sections, which is obtainable in varying thicknesses. The best type of plywood for home-handyman jobs is 'resin-bonded' ply; this is the descriptive term applied to good-quality plywood the layers of which are bonded with synthetic resin adhesives which render the material impervious to water. Resin-bonded plywood is superior to cheaper qualities, bonded with inferior adhesives, which buckle, peel and bulge when subjected to damp atmospheric conditions.

Hardboard consists of pressed fibrous materials, and is obtainable in several thicknesses— $\frac{1}{8}$ in. being the most suitable thickness for general purposes. Hardboard is worked and finished in the same way as wood. Both hardboard and plywood are cut with a fine-toothed saw, using a handsaw for large panels—a tenon-saw for small pieces. If the teeth of the saw used are too large the back of the material will split and break away underneath the saw line. A perforated grade of hardboard is obtainable: this is also known as 'peg-board', and it has many handyman uses.

The softwood used for simple carpentry projects may be rough-sawn or 'prepared'—it has been previously explained that prepared timber is rough-sawn wood, as received from the saw-mill, which has been passed through a planing machine. Although prepared timber is *slightly* more expensive than sawn, which is also known in the trade as 'stuff', the handyman-carpenter will find it advantageous to use prepared timber which will save hours of laborious work in planing down by hand. In most cases it will be found that prepared timber is 'in square', which simply means that the right-angled edges are true right-angles of exactly 45° . In all branches of woodwork it is important to use timber that is 'square', otherwise, however carefully and accurately the joints are cut, the separate parts of a piece of carpentry work will not fit together properly. In many carpentry projects the handyman will be able to purchase prepared timber of the exact size required, for other jobs it may be necessary to cut a piece of prepared timber along its length. The sawn edge is then planed with a smoothing-plane; it may be necessary to reduce the thickness of a piece of timber and this is done with a jack-plane. The correct holding positions for smoothing- and jack-planes are

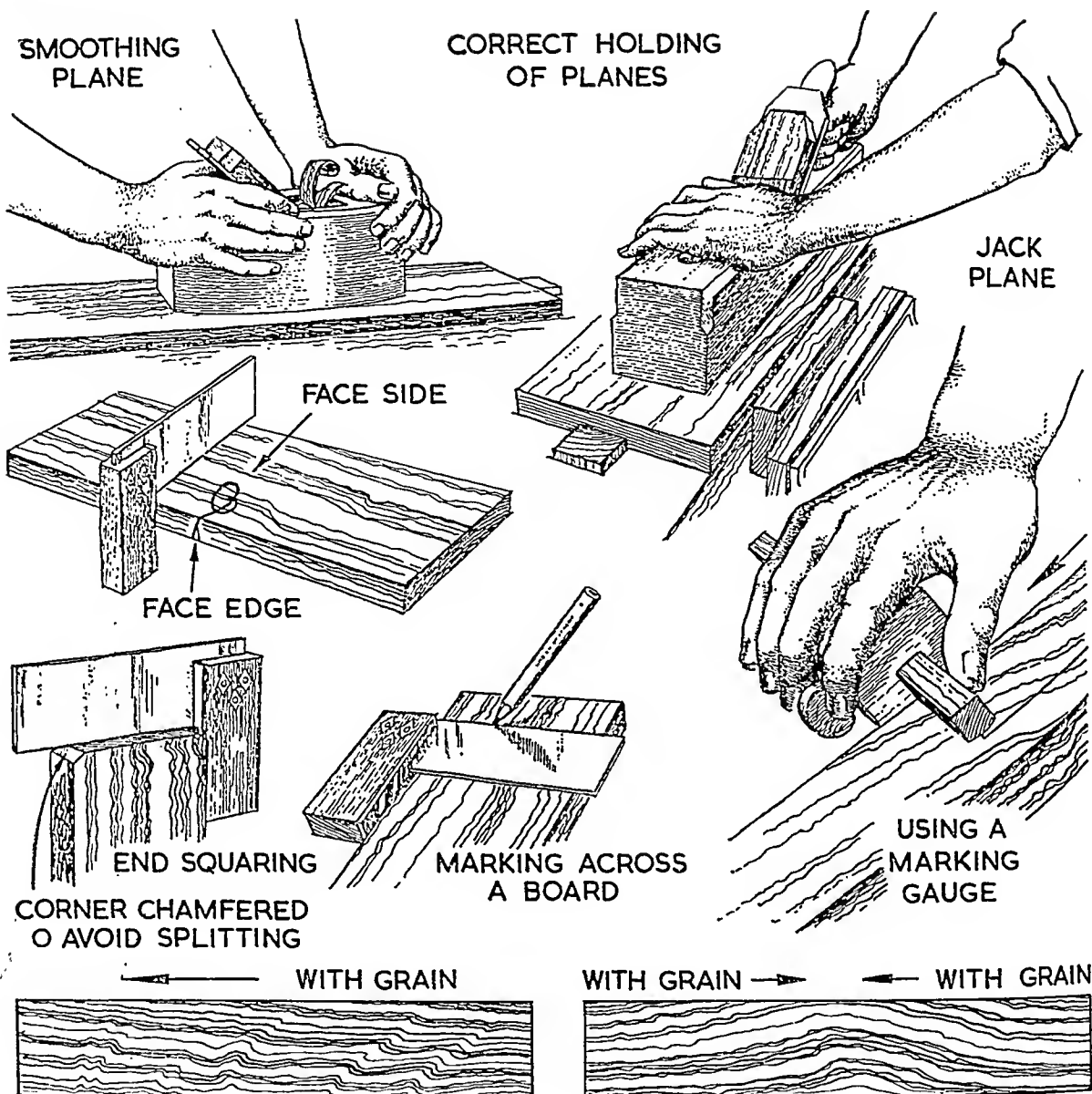


Fig. 80.

illustrated in *Fig. 80*. Planed sides must be finished square with the other sides of the piece.

A piece of planed timber should be given a square face and a square edge, at right-angles to the square face. The squareness of the face side may be tested by placing a steel ruler on edge across and down the length of the piece. No gaps should be visible between the edge of the rule and the surface of the wood; any

irregularities should be cut down with a smoothing-plane. When the test is satisfactory the face is marked with a pencil, as shown in *Fig. 80*. The squareness of the face edge is tested with a try-square, with the handle of the try-square held flat on the face of the wood (*Fig. 80*). The edge is true when the blade of the try-square fits exactly to the edge, and the face edge is also marked, as shown in *Fig. 80*. With the face side and face edge defined it becomes a simple matter to mark any cutting lines along the length of the timber, and these are always marked from the tested face edge and face side.

Lines are marked on the timber with a cutting gauge. The gauge is adjusted to set the required measurement between the point and the face of the stop which slides on the rail and is loosened or tightened with a screwed bolt. The face of the gauge stop is then held firmly and squarely against the face side or edge of the timber, and the tool is *drawn* along the wood to mark the distance line (*Fig. 80*). The timber is then cut with a handsaw through the thickness to reduce the width, or with a jack-plane to reduce the thickness, and the trimmed surfaces are then finished with a smoothing-plane. When using a saw the blade should always run outside the marking-line. The finished surfaces should be square with the marked face-side and face-edge, and this squareness is tested with a try-square.

In addition to working with timber that has squared edges the ends of the length should be finished square. End squareness is tested by using the try-square as shown in *Fig. 80*. The try-square is also used when marking the end of a piece of timber for sawing (*Fig. 80*). If it is necessary to trim the end of a piece of timber to make it square, this may be done with a smoothing-plane. The timber is secured in a bench vice, and the farthest edge is chamfered as shown in *Fig. 80*. If this is done the end-grain will not split.

A piece of wood should always be planed *with* the grain, and not against it—except in the case of end-grain. The direction of the grain may be determined by inspecting the edges of the piece. The illustration in *Fig. 80* shows a typical grain section and the arrows show in which direction the plane should be worked. The direction of the grain may vary in one piece (*Fig. 80*), but the plane direction should always be with the grain and it may be necessary to reverse the direction of the plane along a single surface (*Fig. 80*).

Any joints required in carpentry should be cut carefully and accurately; in the following instructions the type of joints used for making the different projects are described. If the handyman has any doubt about his skill in cutting joints, he will find it a simple matter to practise cutting the joints in waste pieces of wood to get the feel of the job before jointing the main pieces. The rest of the work consists of the unrestricted use of common sense, and plenty of elbow grease in developing the most valuable attribute to any job . . . experience.

Making and Fitting Shelves: Making and fitting a shelf is one of the simplest of home carpentry jobs. 6-in. by 1-in. prepared softwood (pine) is suitable for most shelves. If a single shelf is being made and hung a plank of 6-in. by 1-in.

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timber may be fitted to shelf-brackets with screws as illustrated in *Fig. 81*. Even simple shelves of this nature are best fitted with a low back. The backing illustrated in *Fig. 81* is 2-in. by 1-in. softwood which is fitted firmly at the back of the shelf by means of 2-in. No. 8 screws driven through the underside.

The only preparation of the timber necessary is to take off the front corners of the shelf, and the top corners of the back, with a tenon-saw, finishing to a rounded smoothness with a wood rasp with the wood held firmly in a bench

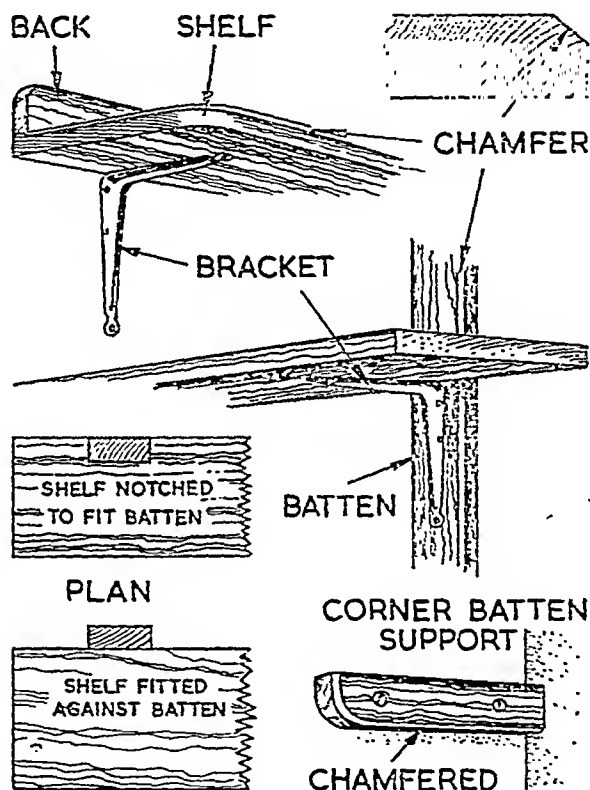


Fig. 81. Making a shelf

vice. A guide-line for defining the corner shape can be marked in pencil round the base of a tin-can of suitable size. The edges of the shelf may be left untouched or they may be given a lighter appearance by chamfering the edges. Chamfering consists of bevelling the edges of the wood as illustrated in *Fig. 81*, and chamfering is done with a smoothing-plane, with the lengths of timber placed against a bench-stop or held in a vice. All the parts should be smoothed by rubbing down with grade medium-two glass-paper before assembling and attaching the brackets.

The shelf is then secured to the wall. This is done by placing the shelf in the required position and marking the position of the screws through the holes in the

backs of the brackets with a pencil. The pencil marks are used to guide the point of a jumper or star chisel, used for drilling holes in walls before plugging them for screws. Plugging walls is dealt with in the previous section.

The shelf is then screwed to the plugged wall, using round-headed screws of a size suited to the wall-plugs. Most shelves of this nature are erected in kitchens or larders, and the best finishing treatment is paint or enamel. Any bare knots should be coated with patent knotting, before priming the wood with pink priming paint or aluminium primer. Leave the priming coat to dry and rub down with grade medium-two glass-paper. Apply two undercoats before the finishing coat of hard gloss paint or enamel and rub down each coat before applying the next one. Any holes or cracks should be filled with putty or a patent powder filler, after applying the primer and before using the undercoats. Painting woodwork is fully described in the next section.

If it is necessary to erect a series of shelves it will be found best to screw the shelf-brackets to battens fastened securely to the wall with screws into plugs. The front edges of the battens should be chamfered and the backs of the shelves may be notched to fit over the battens, or they may rest against the front of them as illustrated in *Fig. 81*. The shelves should be screwed to the shelf-brackets before mounting them on the battens. With this type of shelf it is usually only necessary to fix one bracket at each end of the shelf at a distance of about 4 in. from the end. However, if the shelf is a long one it will be necessary to fix extra brackets and battens. An extra bracket should be added for every length over 3 ft. and parts of 3 ft. Shelves fitted into corners may be secured as illustrated in *Fig. 81* when short lengths of battens are used at the corner end of the shelves. The lower front corner of the battens of 2-in. by 1-in. softwood should be rounded as described above, and the edges chamfered before screwing the battens in position.

Fitting Shelves in a Recess: Shelves may be fitted into a recess at the side of a fireplace by supporting the ends of the shelves on wooden battens as explained above. Alternatively where a neater appearance is required the shelves may be supported in wooden sides as illustrated in *Fig. 82*. A suitable material for painted shelves is 6-in. by 1-in. softwood; the ends of the shelves fit into a groove cut into the sides of the shelf supports. The width of the groove is the same as the thickness of the timber being used. This should be marked on the inside surfaces of the sides with a try-square. A chisel, with the bevelled side inwards towards the waste part of the groove, is drawn along the blade of the square to form a shallow notch in the wood and this is done each side of the groove position. The edges of the groove are then cut through with a tenon-saw to a depth of $\frac{1}{2}$ in., which should be marked on both edges of the side pieces with a marking gauge. The waste is then chopped out with a chisel. The wood chisel is held with the bevelled side of the end of the blade downwards and the handle struck gently with a mallet. Only a small amount of wood should be removed at a time, and after cutting into

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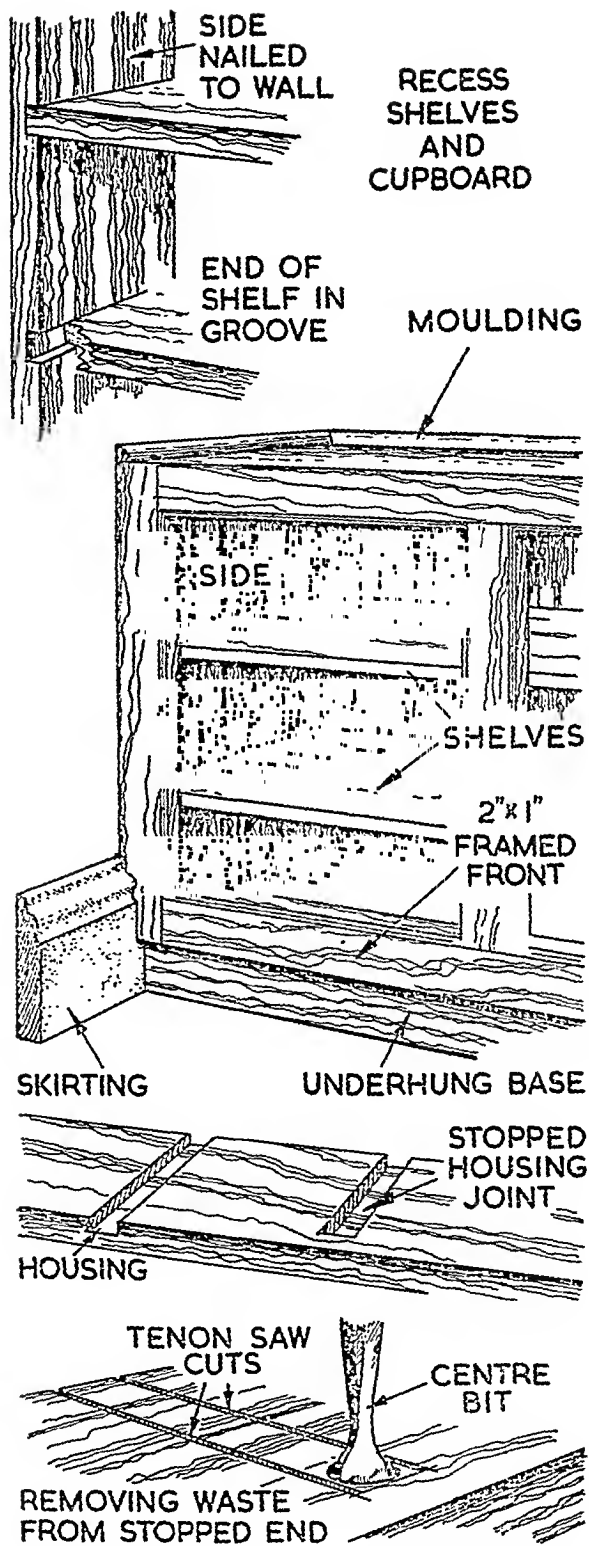


Fig. 82. Fitting shelves in recess

one side the piece should be turned and the chisel used again, starting from the opposite edge. With the main part of the waste cut away, the position of the chisel should be reversed so that the flat side of the blade slides along the bottom of the groove to complete the removal of the waste. In the final stages only hand pressure on the chisel is required. The length of the shelf is then adjusted to allow for the thickness of the ends and according to the width of the recess.

The best method of assembling is to place the ends in position first, and slide the ends of the shelves into the grooves. The fit should be as tight as possible, but if there is any slackness between the backs of the sides and the wall, this may be taken up by nailing the ends into the wall. If this is necessary use $2\frac{1}{2}$ -in. square brads (as previously described) and hammer the brads through the wood in between joints of the brick courses under the plaster. The position of the joints may be determined by measuring from a window, where the courses are plainly visible, or they may be found by testing the wall surface by lightly driving a nail into the plaster. If firm resistance is met the nail is being driven into brick and it should be raised or lowered $\frac{1}{2}$ in. at a time until little resistance is encountered—which denotes that a mortar joint has been found. With one joint found it should be a simple matter to measure from this position to find other joints. The ends at the side of the shelves rest on top of the lower shelf which is placed on top of the skirting-board. Recessed shelves may be neatened by fixing an underhung base as illustrated in *Fig. 82* and framing the upper and lower shelves and the ends with 2-in. by 1-in. pieces of softwood, as illustrated in *Fig. 82*. The top shelf can be improved by adding moulding at the back and sides (*Fig. 82*). The moulding is secured with panel pins to the edges of the top shelf.

The joint described above is known as a 'housed' joint and it is used for making many simple articles of wood.

The appearance of the housed joint may be improved by 'stopping' it, which simply means that the groove is not cut right across the width of the side, but is stopped at the front edge. If this is done the shelf must be notched at the front corner so that edges of the side and the horizontal member are flush at the front. A stopped housing joint is illustrated in *Fig. 82*. It is marked out in the same way as described above by cutting a marking-line with the end of a chisel guided by the blade of a square. The end of the stop is marked on the face side of the wood; the waste at this end is removed with a brace and bit (see *Fig. 82*) before cutting the sides with a tenon-saw. The waste is removed with a wood chisel, starting the removal of the waste with the bevel edge of the blade downwards and finishing with it uppermost.

Fireside Cupboard: If the shelves described above are fitted with an underhung base, and framed with 2-in. by 1-in. pieces of timber, it may be further improved by fitting doors to the framework to enclose all, or some, of the shelves. Although only a low shelf fitting is shown here, this may be extended upwards to fit more shelves for books, etc. Cupboard doors for this simple type of fitment can be

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MARKING A HALVED JOINT

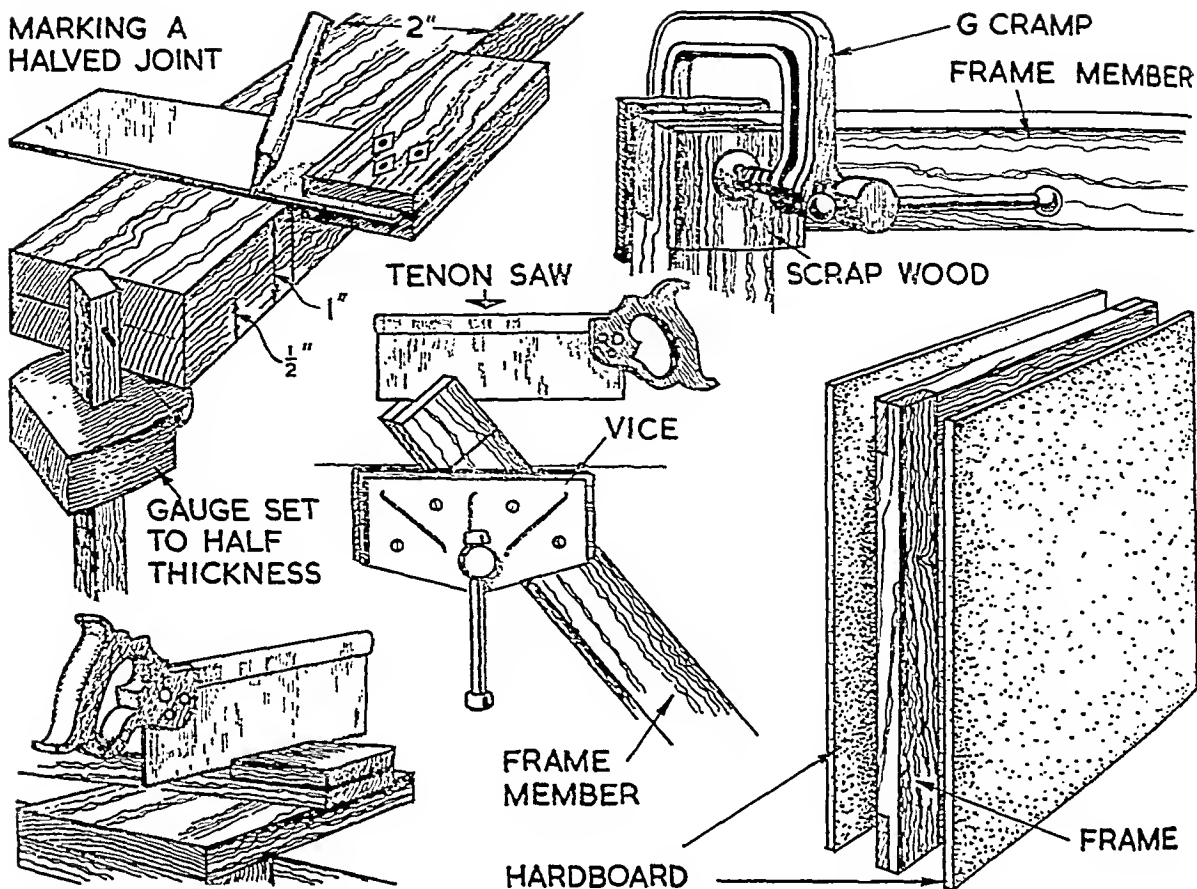


Fig. 83. Details of construction of fireside cupboard

made of hardboard affixed to a framework. The framework is 2-in. by 1-in. softwood and it is made with halved corner joints. These joints are also used for the corners of the frame of the shelves previously described. To make halved joints, half the thickness of the wood should be set on a marking gauge (as illustrated in *Fig. 83*) and the face of the gauge should be pressed against the face side of the wood so that the marking needle cuts into and marks the edge of the wood, as the tool is drawn against the edges and end. The length of the joint should be marked on the face side, as illustrated in *Fig. 83*. Both ends of each part of the framework should be prepared in this way and the waste cut away with a tenon-saw. To do this, place the rail being worked in a bench vice and cut down the grain with the tenon-saw as illustrated in *Fig. 83*. With this done, cut cleanly across the grain to remove half the thickness of the wood at the joint (*Fig. 83*). The halved joints are best secured by gluing, and warmed carpenter's glue should be brushed on both meeting surfaces before closing the joint with

a G cramp (*Fig. 83*). Note that the jaws of the cramp are prevented from marking the wood with pieces of waste wood placed either side of the joint. Before finally securing the G cramps at the corners, the frame should be checked for squareness by placing a try-square inside the angle, and any adjustments necessary should be made before tightening the screws of the cramps. Any twist in the frame can be seen by looking at it edge-ways. There should be no twist if the half joints have been accurately cut. If, however, there is a twist in the frame, this can only be adjusted by trimming the joints with a chisel to make them square. When the glue has set, both sides of the door-frame should be faced with hardboard which may be cut to shape with a handsaw or tenon-saw. The hardboard is secured to the frame with glue and $\frac{1}{2}$ -in. oval nails which should be set about 3 in. apart and about $\frac{3}{16}$ in. in from the edges of the panels. If any final trimming of the edges is necessary this may be done with a smoothing-plane or with glass-paper. It will, of course, be appreciated that this form of jointing and making a door is only applicable to fitments of a simple nature. The construction of cabinet doors is dealt with in the section on Cabinet Making.

Hanging a Cupboard Door: Cupboard doors of this type are best hung with butt hinges and these are shown in *Fig. 84*. Two hinges are required for each door and these are let into the edge of the door by cutting a recess the same size as the hinge. A corresponding recess is let into the side of the cupboard on which the door is hung. The position of each hinge should be roughly the length of the hinge from the end of the hanging side of the door; that is, if the hinge is $1\frac{1}{2}$ in. long there should be a space between the end of the hinge and the end of the hanging side of the door of approximately $1\frac{1}{2}$ in. The length of the hinge is marked across the edge with a square and pencil with the handle of the square held securely against the face side of the door. The width of the recesses for the hinges is marked on the edge of the door with a marking gauge which should be set from the wing edge of the closed hinge to the *centre* of the knuckle, as shown in *Fig. 84*. With the gauge set, the face of the stop should be held firmly against the face side of the door, and the gauge drawn along the edge to mark a line between the pencil lines defining each end of the hinge. The depth of the recess at the front, which should be marked with the gauge on the face side of the door, is the width of the hinge on the knuckle. This is shown in *Fig. 84*. With the position of the hinges marked on the edge of the door it should be placed in a bench vice to remove the waste within the marked lines. The first tool used is a tenon-saw which is worked to make a series of cuts along the length of the hinge position, as shown in *Fig. 84*. The waste is then chiselled out; the ends of the waste should be cut through with the chisel held as shown in *Fig. 84*, then the edge is gradually pared away to remove the waste.

Accurate fitting of hinges is essential if they are to perform their function properly. If you close a hinge and look at it endways on, you will see that it is tapered from the knuckle to the wing edge when the hinge is closed. The recess

into which the hinge fits should also be tapered, so that the hinge fits snugly and squarely into the recess cut. If the recess is cut too deeply it may be packed with strips of paper, but this should not be necessary if care is taken when using the chisel, if the blade is sharp. With all the recesses cut the hinges are secured to the edge of the doors in their recesses with $\frac{3}{4}$ -in. No. 10 countersunk screws. The holes for the screws should be drilled as described in the section 'Handyman's Workbench and Basic Tool Outfit' (page 43).

Hinge recesses are also cut in the sides of the cupboard. These are not cut so deeply as the recesses let into the edges of the door. The side recesses should be just deep enough to take one wing of the hinge only and the shallow recesses should taper, being deeper towards the back of the cupboard. The position of the hinges on the sides of the cupboard is marked by placing the doors in position in the framework and marking the ends of each hinge with a pencil. The door is then removed and the end lines of the recesses marked with a square and pencil with the handle of the square firmly held against the face side of the front of the cupboard. The width of the recesses is marked with the gauge in the same way as for the door recesses. The waste should be removed with a fine-toothed saw and a chisel to make the tapered recesses, illustrated in *Fig. 84*. Doors hung this way will not bind at the hinge side when closed and there will be no strain on the hinges. After cutting the shallow recesses, the doors should be tried in place. To do this, hang each door with two screws only, driven through the centre hole of each hinge. The screws should be tightened and the door opened and closed a few times to find if any final adjustment to the position of the recesses or the screws is necessary. When satisfied with the hang, the remaining screws should be driven through the hinge-holes. The screws should be dipped in oil before driving them home; this will make them easier to work in and will prevent them rusting in the wood.

The method of hanging described above for simple cupboard doors is the same for all kinds of doors hung with butt hinges. When a pair of doors is hung as described above, it will be necessary to devise some arrangement to prevent the doors being pushed in beyond the face of the cupboard. This is done by fitting wooden stops inside one door as illustrated in *Fig. 84*, and finishing the front edge of the other door with a piece of half-round moulding, attached to lap the edge of the door, as shown in the illustration. There are many different kinds of catches and handles for cupboard doors. The small doors of the types described above may be held in their closed position with simple ball catches, but the most suitable and efficient types of closures, which are very easy to fit, are magnetic catches. This simply consists of a steel plate and rectangular magnet which is let into the back of the door, the plate is then screwed to the stop and closing of the door completes the magnetic circuit holding the door firmly in place. Magnetic catches are obtainable from local hardware stores.

A simple type of handle for doors of this kind, which is especially suitable for

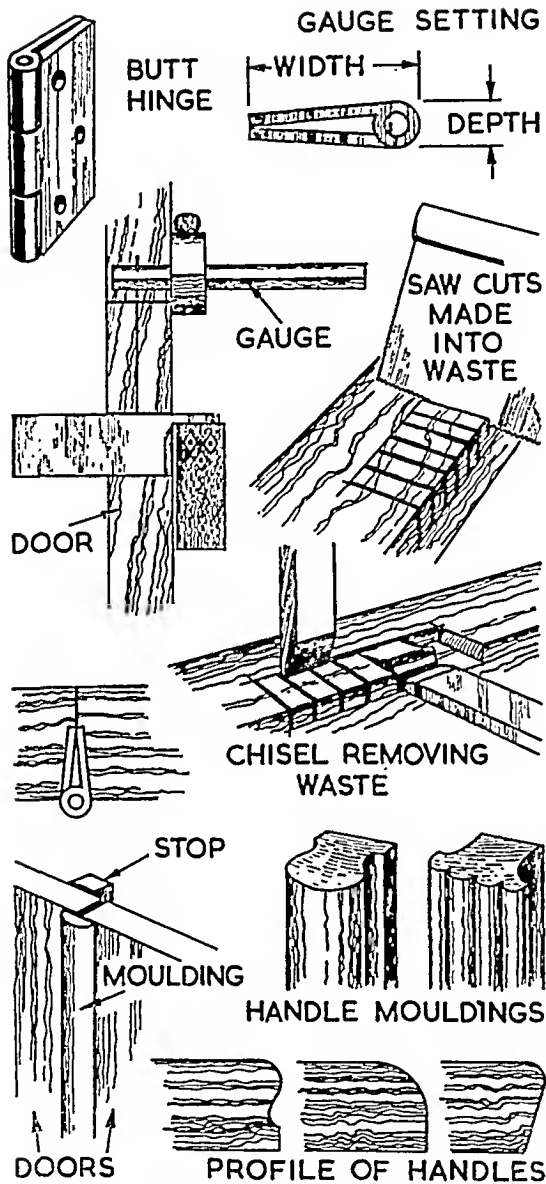


Fig. 84. Hanging a cupboard door

kitchen doors, is a moulded wood handle cut from shaped strips as shown in *Fig. 84*. The length of the handle required is cut from the strip and the edge is then finished with a scroll-saw and glass-paper. Some end shapes are illustrated

in *Fig. 84*. Handles of this type are secured with screws driven through holes from the inside surface of the door.

Rebated Cupboard Doors: An alternative method of fitting cupboard doors is to rebate the edges of them so that the doors fit over the edges of the framework. Doors made this way are lighter in appearance than the framed doors described above, and the finish is more modern. This edge finish is very suitable for doors of cupboards and cabinets in bathrooms and kitchens. The doors are made in exactly the same way as described above by first making a framework of 2-in. by 1-in. softwood, with the corners half-jointed, and covering the frames with hardboard or plywood. The framework, of course, is made larger than the aperture and a reasonable extra amount to allow for the width of the rebate is $\frac{3}{8}$ in. on each side. This means that the frame must be $\frac{3}{4}$ in. larger each way than the aperture. These rebated doors are hung with 'cupboard-door' hinges, which are cranked, as illustrated in *Fig. 85*. The hinges are fitted by screwing them to the face side of the door and the front of the cupboard. The edges of the frame should be rebated before the parts are assembled and the rebating should be done to leave the thickness of the hinge across the cranked knuckle, as illustrated in *Fig. 85*—this thickness *must* include the thickness of the covering of hardboard. The rebates may be cut in several ways. The simplest method of cutting rebates of this sort is to use a cutting gauge. This tool, which has not been previously described, is illustrated in *Fig. 85*. It is similar in appearance to a marking gauge and has the same working action, but instead of a marking needle, the cutting gauge is fitted with a small blade which is held in position with a metal wedge (see *Fig. 85*). Obviously the blade must be kept well-sharpened, if the tool is to work properly. Sharpening is done by removing the wedge to release the blade, the edge of which is then rubbed on an oilstone. To use the cutting gauge the stop should be adjusted to the width of the rebate from the blade to the face of the gauge stop. The tool is then drawn along the edge of the wood with the face of the stop firmly pressed against the edge of the piece. The gauge should not be used to cut the depth of the rebate in one go, and this should be done progressively by making several movements of the tool, each movement cutting a little deeper into the wood. The length of the cutting blade from the bar of the gauge may be adjusted by releasing and tightening the metal wedge. The tool must be held upright while it is being used—gauges of all kinds should be drawn along the work and not pushed into the timber. With one side of the rebate cut, the gauge should be re-adjusted to make the other cut at right angles to the first one. This consists of loosening and adjusting the stop, also the depth of the blade. The tool is then used as before, making shallow strokes and gradually increasing the pressure on each stroke until the waste piece of wood is cut cleanly away. The inside of the rebate is then finished by rubbing down with glass-paper folded over the corner edge of a small piece of wood.

Alternatively rebates may be cut on a small circular bench saw of the type

powered with an electric drill, as described in the section, 'Handyman's Workbench and Basic Tool Outfit'. The depth of the cut is regulated by adjusting the depth of the saw-table on the saw. The width of the rebate is determined by adjusting

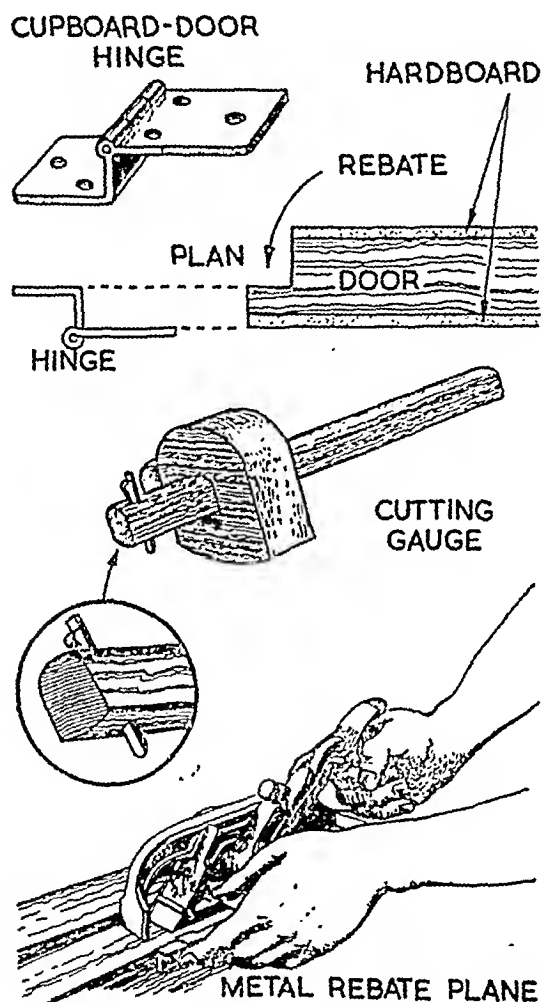


Fig. 85. Rebated cupboard doors

the fence fitted to the saw-table. This method of cutting rebates is very speedy. With the waste removed the rebate should be finished by rubbing down with glass-paper as explained above.

A third method of cutting rebates is to use a rebating plane. This tool is illustrated in *Fig. 85*. It will be seen from the illustration that the plane is fitted with

an adjustable fence on the sole of the plane with a second adjustable fence fitted on the side of the plane; the fences are moved to regulate the depth and width of the cut. In use the plane must be held squarely and upright to produce a clean rebate. With the rebate cut the cupboard door is finished by half-jointing the frame, assembling it and covering both sides with hardboard. The corners of front edges will be improved by gently rounding them with a smoothing-plane or a wood rasp following with grade middle-two glass-paper.

If a pair of doors of this type are to be hung in a cupboard, a centre upright stile will be required to provide a stop for the closing edges of the doors.

A Built-in Wardrobe: This is another simple job for the home handyman. This wardrobe merely consists of a top fixed to the walls, at the sides and back, from which is hung a curtain at the front. Wardrobes of this sort, of course, can be made for children or adults simply by adjusting the height of the shelf. A sectional drawing of the wardrobe in the picture is given in *Fig. 86*. The top of the built-in wardrobe consists of a framework of 3-in. by 1-in. softwood, covered with a sheet of plywood or hardboard, and additional support is given across the top by a middle rail fitted into the framework. The size of the wardrobe top, of course, may be adjusted to fit the dimensions of the recess, and it may protrude from the front of the recess if it is a shallow one. The parts of the wardrobe are made and fitted separately into place. The back is made and fitted first; the ends of the back have a simple notched joint, as illustrated in *Fig. 86*, so that the weight of the sides is also supported on the back rail. The back is secured to the wall by means of square-cut brads nailed firmly into the joints between courses of brick. Alternatively the back and side rails may be secured to the wall with 2-in. No. 8 screws, driven into wall-plugs.

The side pieces are made and fitted after the back rail has been secured to the wall. The back ends of the side rails are notched to rest into the joints cut in the ends of the back rail. The front ends of the side rail are not jointed. Before fitting the side rails in position a hole should be drilled in each rail to take the ends of a bar, which is fitted for the suspension of coat-hangers. The bar may be a piece of $\frac{1}{2}$ -in. conduit piping, or a length of broom-handle. The bar should be cut to length and ends inserted in the holes in the side members before they are affixed to the wall with nails or screws. If the recess is a wide one a central rail should be fitted (as illustrated); this also should be drilled to take the hanger rail and notched to fit into the back rail. The front rail of the top of the wardrobe does not support any weight and it is screwed into the ends of the sides with No. 10, $2\frac{1}{2}$ -in. countersunk screws. The holes drilled through the ends of the front rail to take the screws should be countersunk.

With the framework fitted in position, the top is cut to size and attached. The front edge of the top of $\frac{1}{8}$ -in. thick hardboard or 4-mm. plywood is set slightly back from the forward edge of the front rail and both top edges are slightly rounded with a smoothing-plane and glass-paper (*Fig. 86*). The sheet of material

for the top is secured to the framework with $\frac{1}{2}$ -in. oval nails set about 3 in. to 4 in. apart and $\frac{1}{8}$ in. from the edge of the material. When nailing the top to the front rail, the rail should be supported. The nail-heads should be punched just below the surface of the top. The back and side edges of the top are neatened by the addition of strips of moulding as shown in *Fig. 86*. The meeting corners of the moulding should be mitred; this is done by marking the position of the corner on the moulding, placing it in a mitre-box as previously described, and cutting through with a tenon-saw, the blade of which is guided by the slots cut in the

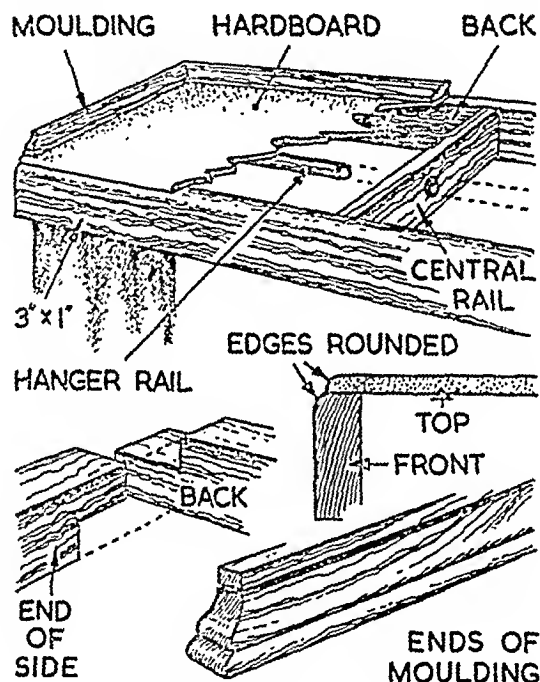


Fig. 86. Built-in wardrobe

side of the mitre-box. The front edges of the moulding may be neatened by shaping them as shown in *Fig. 86*. The moulding is secured to the top with panel pins of a sensible length and the heads of the pins should be punched just below the surface of the wood. With this done the completed wardrobe top should be smoothed down with glass-paper, knotted, primed, undercoated and finished with a coat of hard gloss paint or enamel. The curtain at the front of the wardrobe may be suspended from a spiral curtain spring or curtain rail.

Paperhanging Table: A very useful piece of equipment for paperhanging is a folding table-top of the type illustrated in *Fig. 87*. When opened the table-top is placed on an ordinary table to provide a smooth, flat surface which is ideal

CARPENTRY

HOOK CATCHES

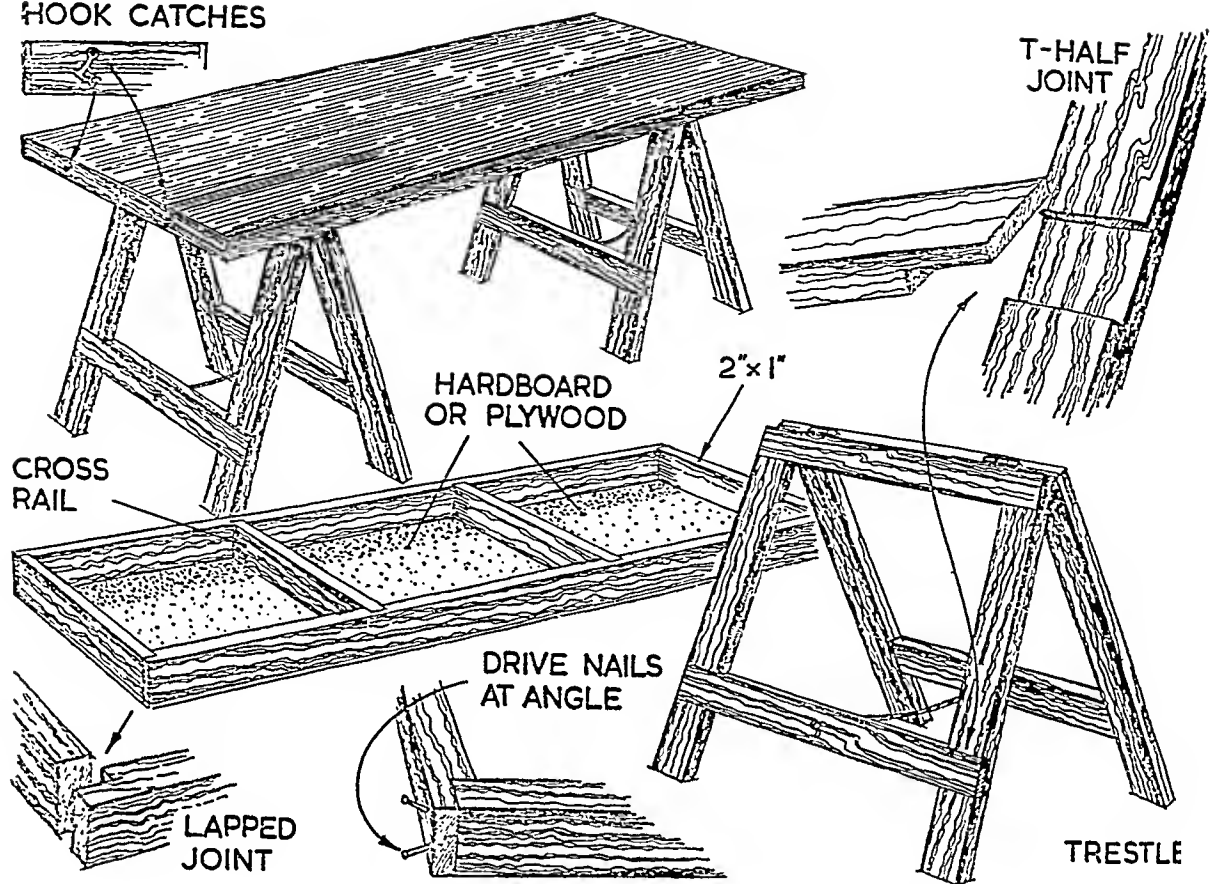


Fig. 87. Construction details for paperhanging table

for working on when pasting strips of wallpaper. The folding table is made in two parts and both pieces are made in exactly the same way. The framework of the table as illustrated in *Fig. 87* is 2-in. by 1-in. softwood. The corners of the framework may be simply butted and screwed, or they may be lapped as illustrated. A lapped joint is made in much the same way as a halved corner joint, described above in making simple cupboard doors. The lap joints are glued and nailed, using $1\frac{1}{2}$ -in. oval nails and driving them in at an angle, as illustrated in *Fig. 87*. A suitable width for each section of the table is 18 in., making an overall width of 3 ft. when the folding table-top is opened. It will be necessary to support the covering material by rails set across the main framework, as illustrated in *Fig. 87*, and for a 6-ft. table two cross-rails set at equal distances apart should be sufficient. The cross-rails are secured to the sides of the framework with the simple housed joints previously described. One side of each of the table-top frames is covered with $\frac{1}{8}$ -in. hardboard or resin-bonded plywood of the same thickness. The

plywood is cut flush with the edges of the framework, to which it is secured with glue and $\frac{1}{2}$ -in. oval nails. The two pieces of the table-top are then fastened together with 2-in. butt hinges and the hinging is done as previously described (see above, making a cupboard door). When the two parts of the table-top are

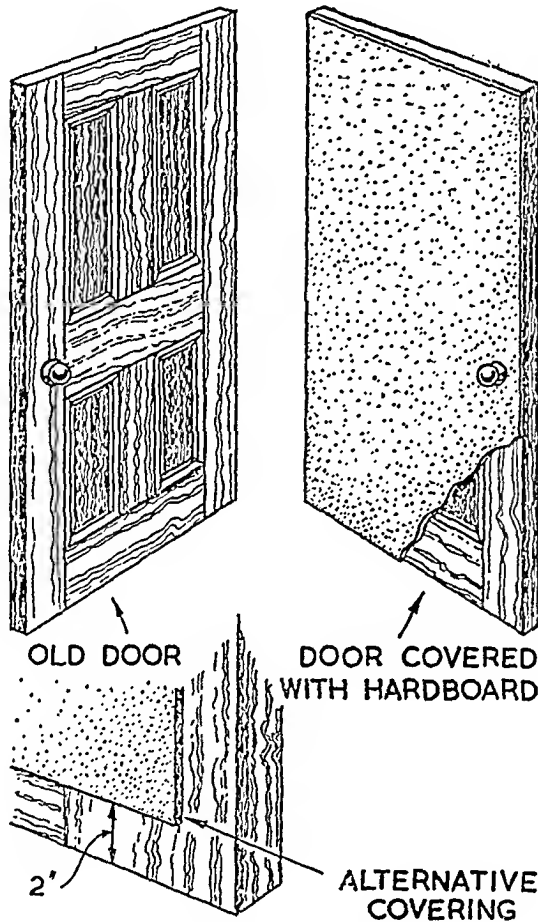


Fig. 88. Covering paneled doors

closed they may be secured by fitting simple hook catches of the type illustrated in *Fig. 87*. The hollow interior of the table-top will be found useful for storing decorating tools. The working surface of the top is best left unfinished. The edges and the inside of the folding table should be painted as previously described. As an alternative to using the folding top on an existing table, it may be supported by hinged trestles of the type shown in the illustration. Each trestle consists

of two frames of 2-in. by 1-in. softwood with top corners half-jointed and the lower rail secured with a tee half-joint (*Fig. 87*). The joints are secured with glue and screws, the tops of the trestles hinged, and a piece of cord fitted through holes drilled in the middle of the lower rails of each side of the trestles.

Covering Panelled Doors: Panelled doors of the type illustrated in *Fig. 88* may be given a smooth flush surface by covering them with $\frac{1}{8}$ -in. thick hardboard. To do this, the door should be removed by releasing the screws securing the hinges to the framework. The lock fittings should also be removed. The covering panels are then cut to size and glued and nailed to the stiles of the door, finishing the edges with a hook scraper and glass-paper. Care should be taken not to cut down the size of the doors when finishing the edges of the flush coverings. The $\frac{1}{2}$ -in. oval nails used for securing the hardboard in place should be punched just below the surface of the new material. If this method of flushing a door is done it will be necessary to remove the stops and trim them to cut away $\frac{1}{4}$ in. to allow for the extra thickness of the door. After trimming and re-hanging the door the stops should be re-nailed in place. Before refitting the metal furniture which consists of lock, handles and finger-plates, the door should be painted. Although the surface of hardboard is finished, it should be rubbed down with grade middle-two glass-paper to provide a scratched key for the paint. New hardboard should be primed and this may be done with pink priming paint or aluminium wood primer. This is followed by filling nail-holes and cracks at the edges with putty, or with a patent powder filler, before applying two undercoats and a finishing coat. Painting is described fully in the section on Interior Decoration.

An alternative method of fitting flush panels to a door is illustrated in *Fig. 88*. This is a much simpler way of doing the job and it is not necessary to remove the door or cut down the moulding. The panel is cut 2 in. smaller all round than the surface area of the door; it is then nailed and glued to the stiles separating the panels as explained above and finished by priming, filling and painting. It will be necessary to remove and replace the door furniture when fitting the alternative flush panels.

Making Pelmet: The addition of a pelmet makes an attractive finish to windows. These fittings simply consist of a shelf-like pelmet board, which is fitted to the top edge of the window-frame, and the front covered with buckram, or any other stiff fabric—or they may be box pelmets with solid fronts and sides. The construction of some simple pelmets and shapes for box pelmets is illustrated in *Fig. 89*. The pelmet board, which is the main part of both types of pelmets, can be made from softwood provided it is well seasoned and reasonably free from knots. A suitable width for a pelmet board is $4\frac{1}{2}$ in. to 5 in., allowing 1 in. which is taken up by the fitting to the top edge of the window-frame which the board overlaps. The length of the board should be the width of the frame plus 1 in. for overhanging at each end. Shelf-type pelmet boards that are faced with

fabric may have square or rounded corners. These boards are secured in place with $1\frac{1}{2}$ -in. oval nails which are driven through the top of the board into the edge of the architrave, at the top of the window. Further support is given by

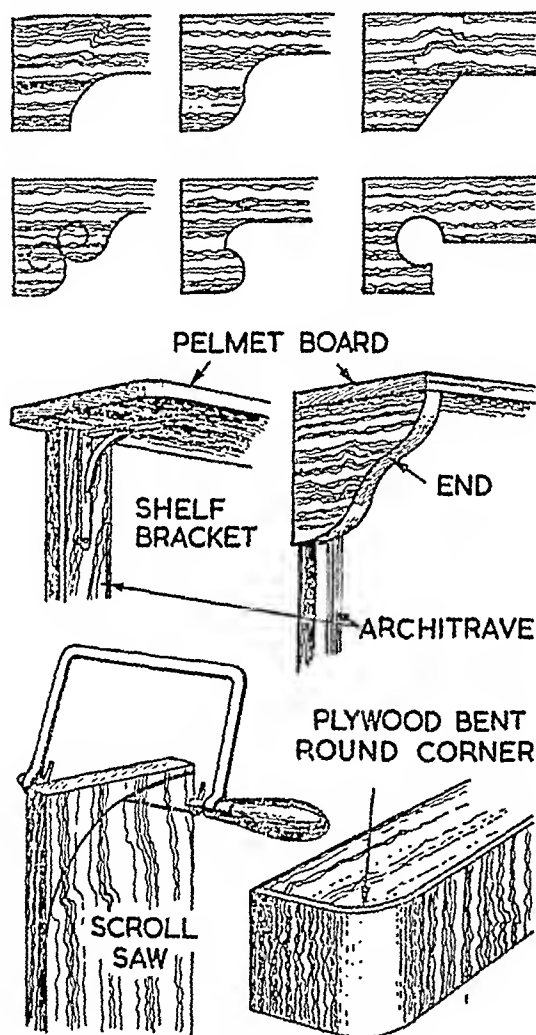


Fig. 89. Making a pelmet

attaching a small shelf-bracket to each end of the pelmet board and the sides of the architrave, as in *Fig. 89*. Three-inch shelf-brackets are suitable for this job and these should be of the type shown in the illustration. The shelf-brackets are secured with round-head screws and for most window-frames a screw length

of $\frac{3}{4}$ in. should be sufficient. The board and brackets may be painted the same colour as the woodwork.

Box pelmets may be faced with 4-mm. plywood or $\frac{1}{8}$ -in. thick hardboard. The edge shape is marked on the face of the front with pencil and, depending on the shape, the waste is trimmed with a scroll-saw or a padsaw. A scroll-saw, which has not been previously described, is illustrated in Fig. 89. A scroll-saw

PELMET
WARDROBE

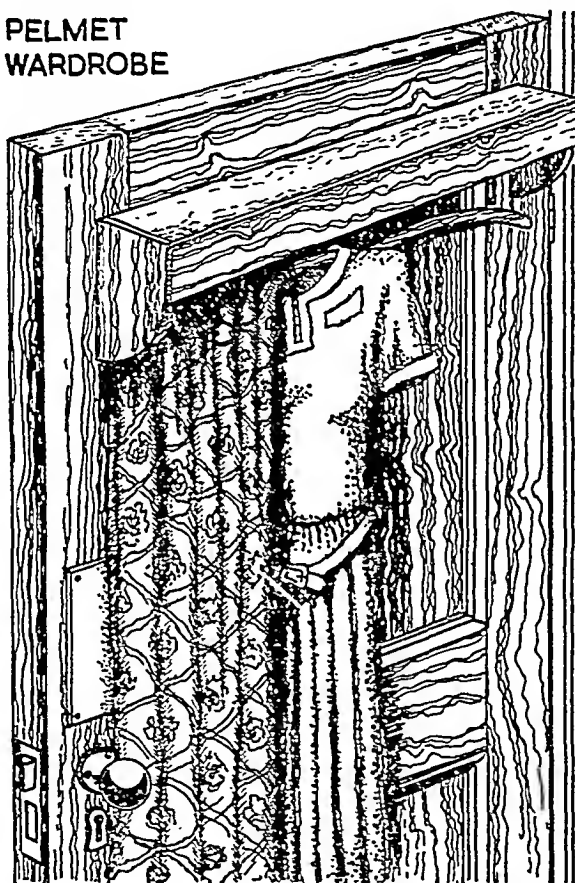


Fig. 90. Another use for a box pelmet

consists of a metal frame fitted with a handle, the blade is removable and may be exchanged for a new one—when it becomes worn or snaps as it sometimes does, however carefully the saw is used. The blade should be fitted with the teeth pointing away from the handle. The handle is threaded to the frame of the saw, and tension is put on the blade by turning the handle and tightening a screwed socket attached to the end of the blade. The angle of the blade to the saw frame may be adjusted by releasing the tension, turning the blade to the required angle

and tightening the handle. This saw will be found extremely useful for cutting small curved shapes in thin materials.

If the box pelmet has curved corners at the front, the grain of the plywood—if plywood is used—should run across the width of the wood. Plywood may be shaped round a curved corner by nailing it to the edge of the pelmet board using $\frac{3}{8}$ -in. or $\frac{1}{2}$ -in. panel pins. The nails should be taken up to the curve and the plywood is then held in the steam of a boiling kettle to make it pliable. After holding the wood in the steam for a few minutes, nailing can be continued round the curve. If the box pelmet has squared corners, the ends of the box should be of the same material used for the pelmet board. The ends may also be shaped as illustrated in *Fig. 89* and they are fitted to the board to lap the corners of the top of the window-frame as shown in *Fig. 89*. If there is no window-frame, as in the case of windows with plastered reveals—a reveal is simply a surface that turns at right angles to the main wall—the pelmet board should be attached over the window aperture with small shelf-brackets, which should be secured to plugs inserted in the wall as previously described.

An additional use for a box pelmet of the type normally fitted over a window is illustrated in *Fig. 90* where the pelmet is shown secured to the back of a bedroom door. The width of the pelmet board may be from 6 in. to 9 in. The pelmet is secured to the door with shelf-brackets and it is fitted with a central bar inside, running from the front of the pelmet to the back. The bar is a short length of broomhandle which supports coat-hangers in this behind-the-door wardrobe. The pelmet is then fitted with curtain rails for a curtain and provides accommodation for two or three dresses.

Bathroom Steps: In a house where there are small children, it will be found difficult for them to reach the water taps of a wash-basin. This difficulty may be overcome in a novel way, by making a small set of steps, as illustrated in *Fig. 91*. The illustration shows how the parts of the steps are fitted together and dimensions of the parts are included. The set of steps consists of two sides, two risers and two treads. The whole job can be made from 6-in. by 1-in. prepared softwood. The parts are nailed and glued together using 2-in. oval nails. The inside angles of treads and risers should be strengthened by rubbing triangular glued blocks of wood into the angles as illustrated in *Fig. 91*. The sides are strengthened with battens, glued and screwed inside, as illustrated. The back and bottom of the small set of steps may be left open. Alternatively, the base and back may be filled in with plywood or hardboard, and the treads hinged to open so that the inner compartments make a suitable storage place for toys. Finish the steps with enamel in bright colours.

Bathroom Cabinet: This simple project for the handyman is illustrated in *Fig. 92*. It consists of a box-like cabinet, the door of which is fitted with a mirror. The inside of the cabinet is fitted with two shelves and the lower compartment is fronted with a hinged door for the storage of first-aid materials. Dimensions of

the cabinet are given in *Fig. 92*. These may be altered to suit a particular requirement.

The sides and shelves are made from 4-in. by $\frac{3}{4}$ -in. softwood. The shelves are fitted into the sides with stopped housing joints as previously described. The corners of the cabinet are lapped, as described above, and the outside edges of the corners are rounded over a wood file and glass-paper. The parts of the carcass are glued and nailed together with $1\frac{1}{2}$ -in. oval nails. The cabinet may be backed

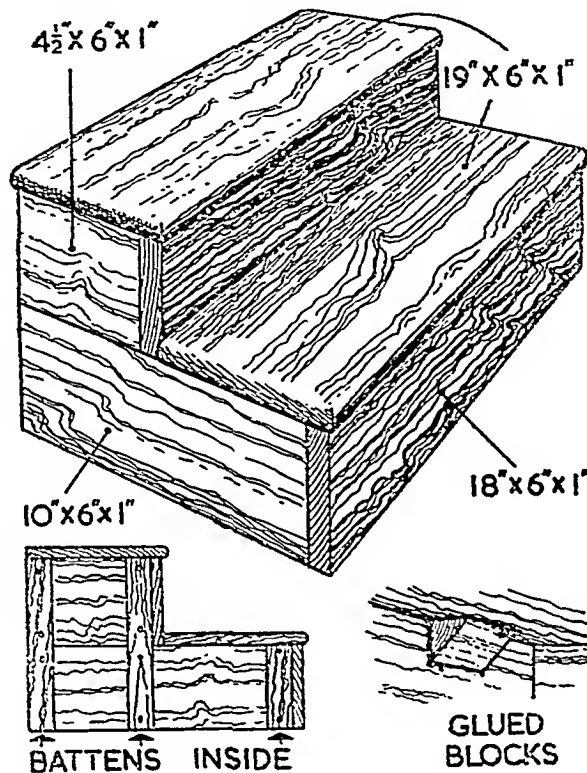


Fig. 91. Bathroom steps

with $\frac{1}{8}$ -in. thick hardboard or plywood. If the cupboard is backed two keyhole screw slots, as shown in the illustration, should be cut in the back of the cabinet, drilling the hole and cutting the slot with a padsaw, as previously described. The slotted holes are for the purpose of hanging the cabinet on screws driven into wall-plugs. Alternatively, if the cabinet is not backed, it may be fitted to the wall with mirror plates of the type shown in the illustration (*Fig. 92*). A shallow recess is cut into the back edge of the top member of the cabinet and the mirror plates are screwed into place.

The door of the lower compartment is made of the same material as the sides and shelves. It is hinged on the lower edge with butt hinges fitted as previously

described and should be secured with a small lock. This is necessary when storing first-aid materials in a house where there are children. The key, of course, should be kept in a safe place. The door of the cabinet may consist of a single piece

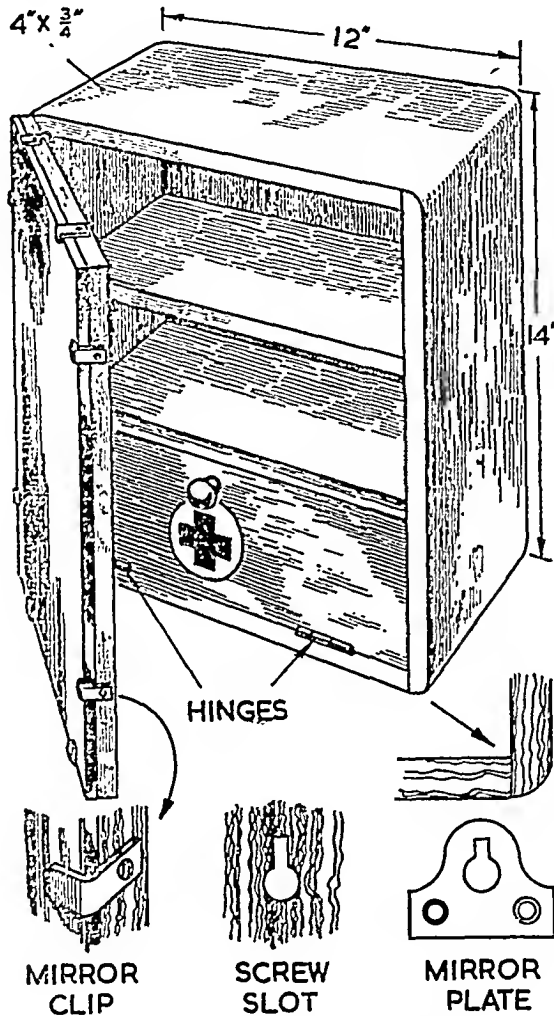


Fig. 92. Bathroom cabinet

of 9-mm. resin-bonded plywood and faced with a flush edged mirror. The mirror is secured to the door with mirror clips of the type shown in *Fig. 92*. Alternatively, the door may be made as a frame in the same way as the cupboard doors, described above, and the mirror frame inserted in the back of the door in rebates. Methods of cutting rebates have been described previously in this section. If the mirror

is secured in a rebated frame it should be held in place at the back with thin strips of quarter-round moulding, nailed to the edges of the rebate. The door is best backed with $\frac{1}{8}$ -in. hardboard or plywood. The door is hung with butt hinges and fitted with a simple catch. For this type of door one of the modern magnetic catches described above will be found very suitable. If the cabinet is fitted with a back, perforated hardboard will be better than solid hardboard, to provide inside ventilation. Before fitting the cupboard in place it should be enamelled inside and out; knot and prime the bare wood, rub down, fill all nail-holes and joint cracks with putty or powder filling, apply two undercoats of

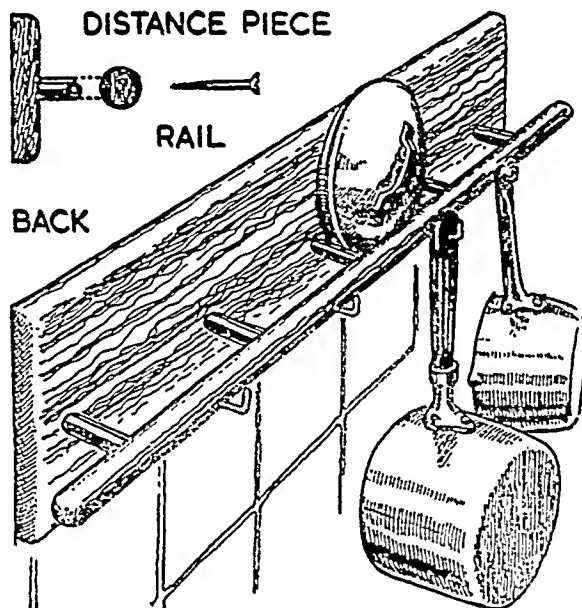


Fig. 93. Saucepan rack

a colour in harmony with the finishing coat, and complete the job with a coat of enamel or lacquer. The first-aid section of the cupboard should be stocked with the following:

A roll of gauze.
Bandages 1 in. wide and 2 in. wide.
Cotton wool.
Lint, white and boracic.
Plasters (tin of assorted sizes).
Disinfectant.
Iodine.

Tin of kaolin.
Boracic crystals.
Petroleum jelly.
Thermometer.
Scissors.
Tweezers.
Doctor's 'phone no.

Making a Saucepan Rack: This simple device for the kitchen, can be made without difficulty in one evening. The rack consists of two main parts—a back

and a rail. The back is made from 6-in. by 1-in. prepared softwood and the rail is a length of broom-handle. Distance pieces of $\frac{1}{2}$ -in. metal tubing are used when attaching the rail to the back (*Fig. 93*). The appearance of this piece can be improved by chamfering or rounding off all the front edges of the rack. The rack can be made to accommodate any number of saucepans. The length of the back is determined by totalling the diameters of all the pan lids, adding the width of the distance pieces, which are fitted between each lid, and one at each end of the set of lids, and allowing an extra $1\frac{1}{2}$ in. at each end of the rack. The posi-

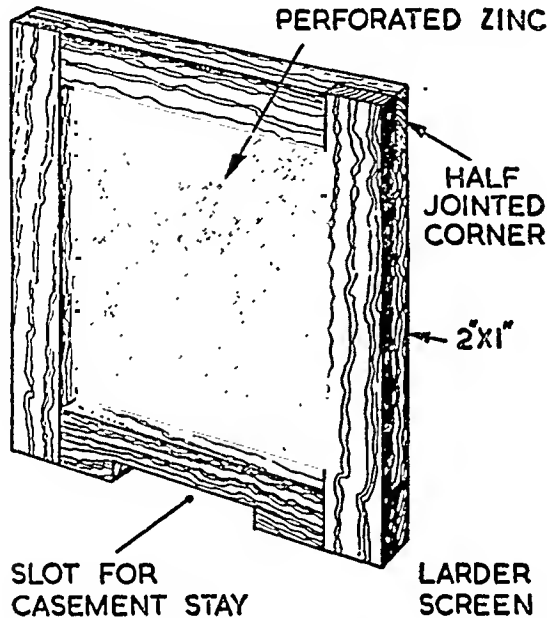


Fig. 94.

tions of the distance pieces are found by placing the lids in their order of size on the back, and marking the edges across the widest part with a pencil. The width of a distance piece should be allowed between each lid. The rail should be rubbed smooth with glass-paper and the ends rounded over. The holes for the screws, driven through the back of the rack into wall-plugs, should be countersunk. The rail, which is secured to the back with screws, should be drilled where the distance pieces are fitted and the fronts of the screw-holes should be countersunk. All the parts should be rubbed smooth with glass-paper before assembling. The length of the distance pieces will be determined by the depth of the largest saucepan lid, plus about $\frac{1}{8}$ in. allowance for the ends of the distance pieces to sink into the wood when the rack is assembled. The rail is secured to the back, using screws of a suitable length which are inserted through the drilled holes and the distance pieces. After assembling the rack is secured to the wall by screws

through the back of the rack driven in the wall-plugs. The fitting is then painted or enamelled a suitable colour to agree with the decoration scheme of the kitchen.

Larder Screens: Screens for larder windows are necessary to prevent the entry of flies through open windows. The screens are made on a framework of 2-in. by 1-in. softwood and the covering material is perforated zinc. The frame should be made to fit snugly inside the window-frame as illustrated in *Fig. 94*, and a slot should be cut in the bottom member of the frame to permit the easy movement of casement sash stays. The corners of the frame should be half-jointed as previously described and the joints secured with glue and screws. With this done, the zinc should be secured to the window side of the frame, using large-headed panel pins, and driving the nails through perforations in the zinc. Zinc is cut to shape with a pair of tin snips as previously described. The framework should be painted before fitting the screen to the larder window and fitting is done by means of two screws through each side member of the screw frame, driven into the woodwork of the window-frame.

A Kidney-shaped Dressing-table Top: Fitting a kidney-shaped top to a dressing-table is a simple conversion job for the handyman-carpenter. This is done by cutting and shaping material for a new top which is secured to an old table. The table may be an old dressing-table or a small kitchen table and any suitable stand may be fitted with a shaped top to do duty as a dressing-table. The material used for the shaped top is 9-mm. plywood. There are several different shapes to which the top of thick plywood may be cut and these are illustrated in *Fig. 95*. The dotted lines in the illustrations show how much the new-shaped tops should overhang the old table.

The first part of the work of conversion consists of checking the table; any loose joints should be tightened and the top of the table firmly secured to the rails and legs. This may be done by driving screws through the top of the table into the rails, or glued triangular-shaped wooden blocks may be rubbed into the joining angle under the table-top and the insides of the rails. The old table may be painted or brush-grained to tone with the existing bedroom furniture. The new top may also be painted or brush-grained after it is shaped and fitted in position, or alternatively, the plywood used may be obtained with a veneered face in oak or mahogany, etc., and this may be finished to match up with the existing bedroom furniture. This type of finish is particularly effective if the legs of the old table are enclosed by a curtain hung from the edges of the kidney-shaped top. The new top may, alternatively, be covered with a loose cover, using the same material as that for the front curtain. Both brush-graining and the making of curtains and loose covers are dealt with in later sections.

The edges of the pieces of 9-mm. plywood are cut to shape with a scroll-saw or a padsaw. The outline of the new top should be marked on the plywood with pencil. To ensure that both ends are of the same shape and size a guide-line should be drawn across the plywood in the middle and the wood should be

squared. This simply means that the top of the table is marked with pencil to outline 3-in. squares all over the surface. With this done the shape of one half of the table should be drawn over the squares at one end and the curves should then be marked in the corresponding squares on the other half of the table. If necessary the shape of the new top can be drawn as a small pattern on graph paper and enlarged on the squared table-top. When using the scroll-saw to shape the edges the new table-top should be rested firmly on a flat, even surface and only a small amount of the wood being sawn should protrude over the edge

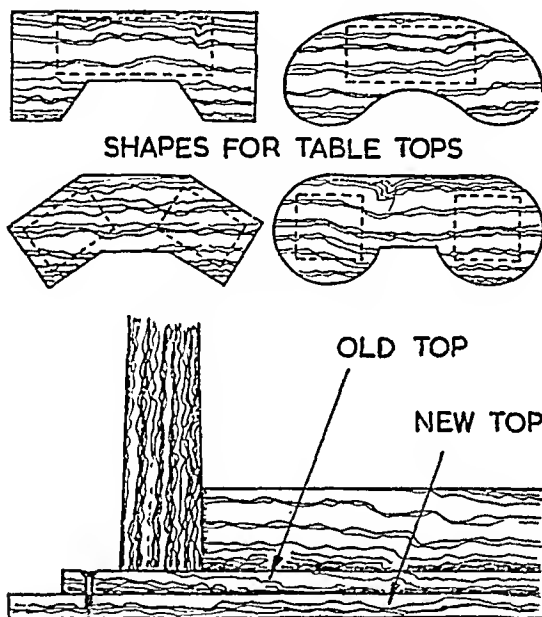


Fig. 95. Kidney-shaped dressing-table

of the working surface. The saw should be held upright with the blade slanting at an angle of about 45° . It should be appreciated when using the scroll-saw that only forward action of the blade cuts the wood and the withdrawing action which does not cut the wood can be quite light. After cutting the top to shape, the edges should be rubbed smooth with glass-paper.

The next part of the job consists of fixing the new top to the old table. This may be done by gluing the two joining surfaces, placing them together and screwing through the new top into the rails of the old table. This method of attachment is suitable if the new top is to be painted or brush-grained. The holes for the screws should be countersunk, and after driving the screws home and priming the wood, the holes are then filled with plastic wood or putty. If the new top

is to be stained and polished, both joining surfaces should be glued, placed together, the table turned upside-down and screws of a sensible length driven through the edges of the old table-top, as shown in *Fig. 95*. The work should then be left for the glue to harden.

Finishing will depend on the style of the table, and it has been explained that it may be painted or brush-grained, or the legs only painted or grained, and the top polished, painted, brush-grained or fitted with a loose cover. The curtains enclosing the front of the table are hung from a curtain rail, the brackets of which should be screwed into the underside of the new plywood top. The curtain rail is bent to follow the edge shape of the top. The curtain may have a standing head or be fitted with a valance to suit individual taste.

Household Steps: The household steps illustrated in *Fig. 96* form a useful piece of equipment for many handyman jobs around the house, and they will be found especially useful for decorating. The making of a pair of steps is a little more difficult than the projects previously described in this section, but the work is well within the scope of the handyman-carpenter. Steps are composed of two side members which are known technically as 'strings' into which are fitted treads at intervals of about 10 in. The steps are topped with a back and a top, and they are supported by a single trestle which is hinged to the back of the steps. The hinged trestle is secured to the body of the steps with a length of stout cord fitted at both sides. The steps described have a top height of about 5 ft. 9 in. when opened: the height may be adjusted by increasing or decreasing the number of treads. Prepared 1-in. softwood may be used for all the parts, provided it is well-seasoned and is reasonably free from knots.

Make the sides first. These are made from 5-in. by 1-in. softwood, and each side is 6 ft. 2 in. long. The treads are housed into the sides, and the housings are cut at an angle of 30°. To ensure accuracy in marking out the angle of the joints, an adjustable bevel should be used. This tool, which has not been previously described, is illustrated in *Fig. 96*. It is similar in appearance to a try-square, the difference being that the metal blade of the bevel is adjustable by releasing and tightening a screw in the side at the top of the handle. For marking out the step joints, the bevel should be set at an angle of 30°. The sides should be squared and marked with a face side and face edge, as previously described, before using the bevel. One edge of each side of the steps should be marked at intervals of 10 in. and the bevel used to pencil the 10-in. distance lines across the face of the sides. With this done, the waste at both ends should be cut away with a handsaw.

The slanting lines across the sides mark the *middle* of each groove; the width of 1-in. prepared timber is $\frac{7}{8}$ in. and the width of the actual timber used should be checked before marking out the sides of the grooves. The width of the timber should be halved, and the half-width marked each side of the centre line using the set-bevel. A pair of well-made steps should taper towards the top, and each

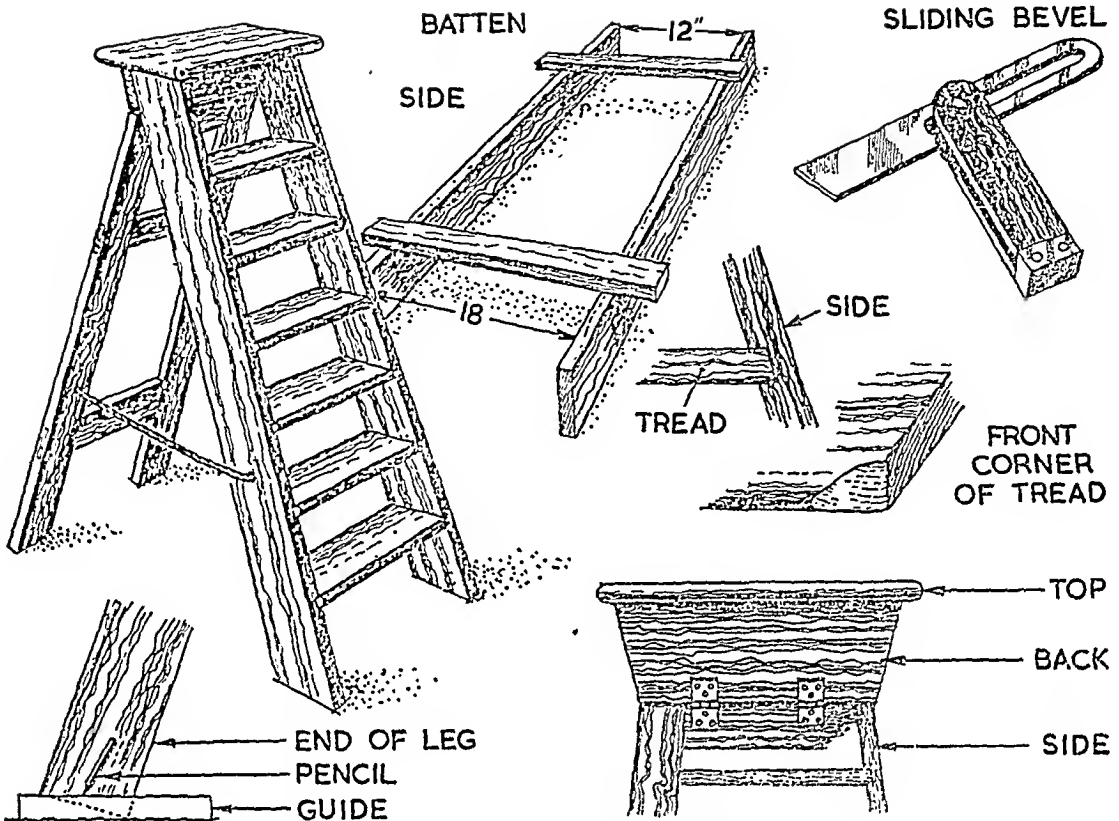


Fig. 96. Details of construction of household steps

tread is a different length. To set the taper place the two sides, with insides facing, on edge and nail thin strips of wood across the sides into the edges of them, as shown in *Fig. 96*. With this done the overall width of the sides at the lowest tread should measure 18 in., and the overall at the top tread should be 12 in. The temporary stays should be securely fitted so that there is no movement of the sides while the treads are fitted.

The two lines defining the edges of the grooves should be marked from the face side of the pieces with a marking gauge set to a depth of $\frac{7}{16}$ in. All the waste is then removed, as previously described, with a tenon-saw and wood-chisel. The width of the grooves should be cut *slightly* less than the width of the treads to ensure tight-fitting joints. When marking and cutting, the sides make sure that the parts are paired, and that you do not cut two sides the same—i.e. the grooves in a pair of strings slope in opposite directions.

The ends of each tread are tailored to fit snugly into the housing grooves cut into the sides of the steps. After fitting the first tread, the angle of the ends should

be set on the bevel for marking out the ends of the remaining treads. The back edges of the treads are sloped to the meeting angles of the sides (*Fig. 96*). The front edges and corners are shaped as shown in the illustration, and each tread is cut from 6-in. by 1-in. prepared timber. With all the treads made the sides should be released from the battens holding them in position, and the treads secured in place. The treads are secured to the sides with glue and screws. The screws (2-in. No. 12's) are driven into the ends of the treads through countersunk holes drilled from the outsides of the strings in the centre of each groove. Two screws are used to secure each end of each tread. The screws are best driven after all the treads have been glued and firmly housed in the grooves with the taper battens replaced. Before the screws are inserted the steps should be tested for squareness. This is done by measuring diagonally from corner to corner the space between the bottom two treads and the two upper treads. The crossing diagonals of each between-tread spacing should be the same.

The top is fitted next. This part overhangs the sides and the front and back by 1 in. at each edge, and all the edges of the top are gently rounded over. Grooves are cut in the underside of the top to take the two ends of the sides, and the top is then glued and screwed in position. The back of 6-in. by 1-in. prepared softwood is fitted, as shown in *Fig. 96*, with tapering ends, and this piece is glued and screwed to the sides and the top.

With all the parts of the front of the steps made and fitted, the holding battens should be left in place until the glue has set, before making the back. The trestle is made of 2 $\frac{3}{4}$ -in. by 1-in. softwood and this part is tailored to fit the back of the steps. The top of the lower cross-rail of the trestle should be aligned on the top of the lowest tread, with the steps closed. The top edge of the upper cross-rail should be aligned on the top of the uppermost tread. The parts of the trestle are half-jointed. The tops of the sides of the trestle are trimmed to fit snugly under the lower edge of the back. The parts of the trestle are secured with glue and screws, and the trestle is hinged at the top to the back-piece of the steps with back-flap hinges.

The last part of the job consists of attaching cords and shaping the base edges of the legs. The cords are attached through holes drilled into the sides of the steps and into the sides of the trestle. The holes are drilled just under the second tread and in corresponding positions through the sides of the back. Use stout sash-cord, and cut each piece exactly the same length to restrict the opening between the inside of the steps and trestle to 3 ft. at the base of the legs. The cords are secured by passing the ends through from the insides of the holes and tying a single knot which must be tightly pulled against the fronts of the holes.

With the cords secured open the steps and place them on a level surface. Mark the cutting angles on all legs with a piece of wood guiding a pencil as shown in *Fig. 96*, and trim the waste with a saw.

Window-seats: Fitting a window-seat is a job that comes within the scope of the

handyman-carpenter. The best type of windows for fitting with window-seats are those which have a rectangular or angled bay. This type of fitment is not entirely suitable for unrecessed windows. Whatever the shape of the window the making of the seat is done in the same way. The material used for the framework of the seat is 2-in. by 1-in. prepared softwood. The three sides of rectangular

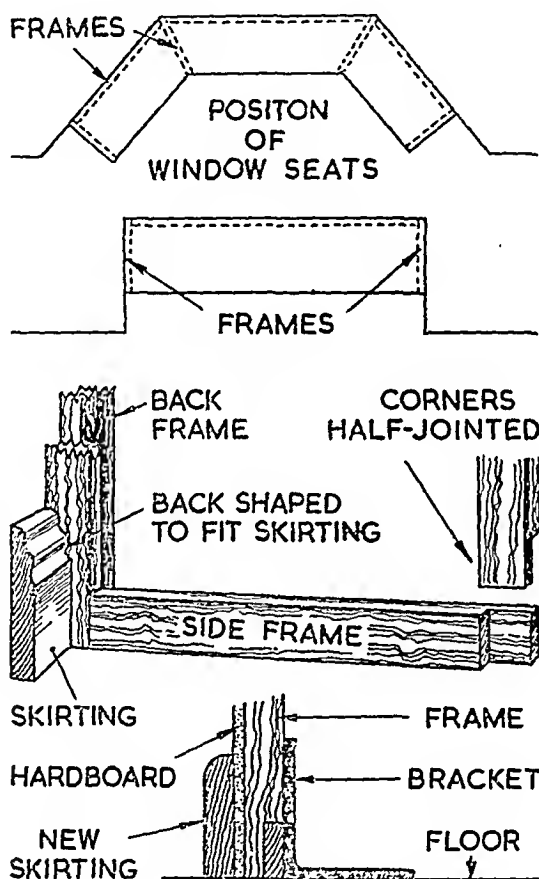


Fig. 97. Window-seat details

and angled bays are fitted with frames of 2-in. by 1-in. wood with half-jointed corners which are secured to the plugged walls. A reasonable height for a window-seat is 18 in. from floor-level to the top of the seat and this should be taken into account when making the wall-frames.

The seat is supported on side-frames which are fitted as shown in *Fig. 97*. These frames, which are also of 2-in. by 1 in. softwood, are half-jointed at the

corners and the lower inside members of the frames should be cut to shape with a scroll-saw, to fit neatly over the skirting-board. The back members of the side-frames are screwed into the edges of the wall-frames. In the case of a bay window it will be necessary to fit two extra frames at each angle as shown in the illustration. The inside frames should be shaped to fit close to the skirting-board and the top of the backs should be notched on the inside edges to fit over the rails of the wall-frames. The inside frames may be secured to the floor and the wall-frames with angle-brackets or shelf-brackets, as shown in the illustration (*Fig. 97*).

The front also is built on a framework of 2-in. by 1-in. softwood, which is screwed into the front edges of the side-frames. The ends and fronts of the framework can be faced with $\frac{1}{2}$ -in. hardboard or 4 mm. plywood. The lower edge of the front of the seat may be fitted with skirting-board of the same pattern as the existing board, or with narrow skirting of 3-in. by 1-in. softwood with the forward top edge rounded over as shown in *Fig. 97*. The top of the seat may be filled in with planks of 6-in. by 1-in. softwood, and these may be secured to cover the seat completely or a section of the top may be hinged so that it can be lifted to provide access to the space inside the seat which forms a useful cupboard. The top of the seat may be upholstered—upholstering is described in a later section of this work. It may alternatively be covered with sponge rubber cushions cut to fit the shape of the seat, and covered with a suitable upholstery fabric to go with the rest of the soft furnishings in the room. All the visible surfaces of the woodwork should be painted to tone with the interior decoration scheme of the room in which the seat is built. These window-seats may be backless or they may be fitted with backs.

Cold Frames: The home handyman with a bent for gardening will find cold frames very useful. The frame described below may be made as a single fitment, or as one unit of a series of sectional cold frames, other separate units of which may be added at a later date. Each unit of the sectional frame may be backed by another unit or placed to the side of it as shown in the illustration, (*Fig. 98*), which also includes constructional details. The cold frames are made on a framework of 2-in. by 1-in. softwood and the outsides of the assembled frames are covered with 6-in. by $\frac{3}{4}$ -in. tongued-and-grooved match-boarding. Softwood is used throughout. The top of the frame is fitted with a hinged light. The frame is designed to stand on a single row of house bricks, placed on edge and half buried in the soil.

Make the end frames first. The bottom rail of the end frames is 2 ft. 3 in. long and half-joints should be cut at both ends of this rail. Two pieces of 2-in. by 1-in. material should be half-jointed at one end only and the half-joints screwed to those of the bottom rail. The uprights should be tested for squareness before fitting the top rail. To find the correct angle of the top rail, place a batten over the two uprights with the front edge of the batten 9 in. from the lowest edge of the bottom rail, and the back of the batten 17 in. from the lower rail (*Fig. 98*). With

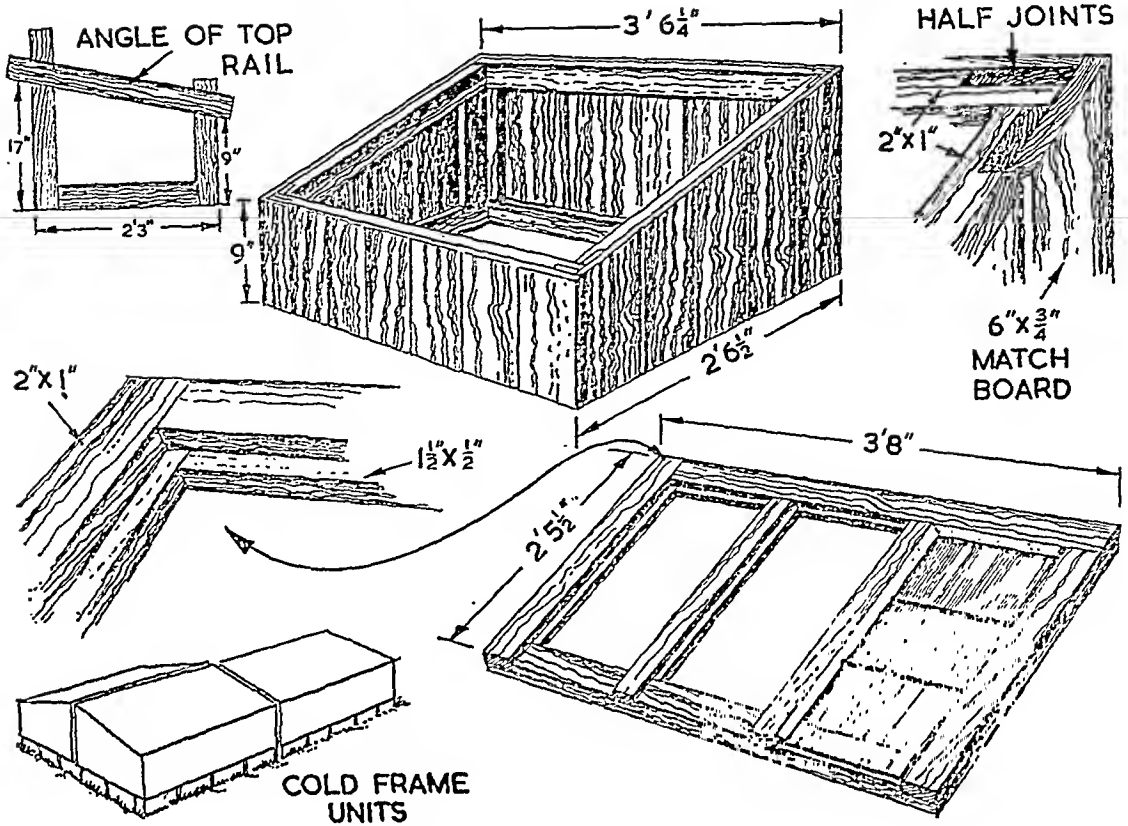


Fig. 98. Cold frame

the batten so arranged, mark a guide-line with pencil, remove the side battens, cut along the guide-lines and half-joint the ends, then again screw the side-rails to the lower rail. Place a batten in the half-joints at the top to find the length and shape of the top rail. This should be done after checking the lower angles for squareness and the cutting line of the top rail is marked in with pencil. The ends of the top rail are half-jointed. The frame at the other end of the cold frame has an outside dimension of 3 ft. $4\frac{3}{4}$ in. by 17 in. Four pieces are used for the frame and the corners are half-jointed. Dimensions of the front frame are 3 ft. $4\frac{3}{4}$ in. by 9 in. The back and front frames overlap the ends of the side-frames (Fig. 98).

Before finally assembling the framework with screws, the meeting surfaces of the joints should be coated with lead paint. The pieces are then screwed together before the match-boarding is added. The screws used at the half-joints should be $\frac{3}{4}$ -in. No. 10 screws. The screws used for joining the frames together should be $1\frac{1}{2}$ -in. No. 8 screws and all the screws should be dipped in oil before

driving them home. The match-boarding, which faces the framework, is fitted vertically. $1\frac{1}{2}$ -in. oval nails are used to secure the boarding to the frames. The sloping ends of the boards at the top of the side-frames are best trimmed after the boards have been secured to the framework and trimming is done with a handsaw. The top edge of the boards at the back of the cold frame is trimmed with the frame to slope at the same angle as the sides (*Fig. 98*).

The hinged light which covers the top of the cold frame may also be constructed of 2-in. by 1-in. prepared softwood. The frame for the light is made to overhang the ends and front of the frame. It will be seen from the illustration, (*Fig. 98*), that the frame for the top light is fitted with two bars which should be tee-half-jointed into the front and back rails.

The rebates into which the glass fits are formed by nailing strips of $1\frac{1}{2}$ -in. by $\frac{1}{2}$ -in. wood to the top of the rails as shown in *Fig. 98*. The lower rail of the top framework is not fitted with a rebate. The cover is hinged to the back of the cold frame with 3-in. butt hinges, as previously described in this section. With the framework completed, all nails should be punched just below the surface of the wood, rough surfaces rubbed down and knots coated with patent knotting, before applying a coat of pink priming paint. The glass is fitted in place after the woodwork has been primed. The pieces of glass fitted between the bars of the light should be $\frac{1}{8}$ in. short at both sides of each section. If the glass is fitted with a single strip for each section it should not be less than 21-oz. glass. If several short pieces of glass are used with the lower edges overlapping, 15-oz. glass may be used. Whether long or short strips of glass are used the bottom edge of each section should overlap the front rail of the frame (*Fig. 98*). The cover is glazed in the same way as a window is glazed, as described on pages 92—93 in the section 'Interior House Repairs'. With the cover glazed, the frame is finished by treating knots, priming and coating wood and putty surfaces, inside and out, with two undercoats of white lead paint, finishing with one coat of outside quality hard gloss oil-paint. When painting the job make sure the under edge of the frame which rests on the layer of bricks is well coated.

Rising-butt Hinges: The fitting of rising-butt hinges is a simple job of carpentry. Rising butts are fitted to doors which require raising when opened, such as doors of rooms with carpets or rugs that prevent doors fully opening when the bottom edge of the door meets the edge of the floor-covering. Of course, the bottom edge of a door may be trimmed to ride over the edge of a carpet, but if there is floor space between the carpet and the door, trimming the bottom edge of the door will permit the entry of draughts. The action of a rising-butt hinge is such that it raises the door as it is opened. The illustration, (*Fig. 99*), shows the design of a rising-butt which has a spiral knuckle joint. Rising-butt hinges are made as 'left-hand' or 'right-hand', and it is important to ask for the correct pattern when ordering. The correct 'hand' is determined by the position of the hinged side of the door, when closed, and viewed from the room into which the door opens.

Rising-butt hinges are made in the same lengths as ordinary butt hinges, and the hinges being replaced should be measured for length before buying the new ones. The new hinges should fit into the old recesses, but in some cases adjustment may be necessary. The new hinges should fit to the frame and edge of the door as illustrated in *Fig. 99* with a full-depth recess for the hinge cut into the frame

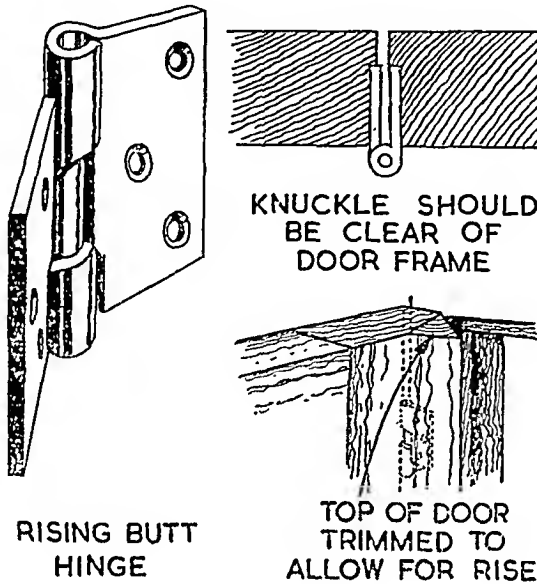


Fig. 99.

of the doorway, and a half-hinge recess cut into the edge of the door. The knuckle of the new hinges should be clear of the face sides of door and frame (see *Fig. 99*). With the hinges fitted it will be necessary to trim the inside corner of the hinged side of the door, as shown in the illustration, to prevent this corner jamming against the framework of the door when it is opened and closed.

INTERIOR DECORATING

Planning colour schemes—how to use colour—simple methods of planning schemes of decoration—ideas for sitting-rooms, dining-rooms, bedrooms, kitchens, bathrooms and halls.

PAINTING. *Cleaning Down: Use of sugar soap—use of glass-paper. Stripping: Methods of stripping—scraping—use of paint solvents—electrical paint-strippers—blowlamps, butane-gas and paraffin fuelled—tools for stripping—cleaning materials, miscellaneous tools and equipment. Tools for applying paint: Use of paint-rollers—paint-brushes—use of a lining brush—paint-sprays—masking.*

PAINTING MATERIALS. *Knotting: Use and purpose. Fillers: Use of putty—plastic wood—powder fillers. Abrasive Materials: Use of glass-paper—waterproof glass-paper—garnet paper—emery cloth—pumice.*

PAINTS. *Types of paints—differences in qualities. Priming Paints: Purpose—use of aluminium primers—sealing properties of aluminium paints. Undercoatings: Purpose of undercoats—cleaning and dusting—covering capacity—importance of quality. Paints for Finishing: Descriptions of types—paints for purposes—emulsion paints—suitability. Application of Materials: Sequence of work—preparing surfaces—parts taken-in with inside surfaces—windows and doors—knotting, priming and filling—undercoating—thinning—finishing coats. How to Apply Paint: Size of brushes—loading brushes with paint—brushing on and laying off—brush control—fat edges. Painting Windows: Sequence. Painting Doors: Sequence of work—finishing. Cleaning Paint-brushes: Temporary storage—cleaning before long storage—cleaning metal tools—sealing paint-cans—straining paint. Paint-rollers. Special Paints and Finishes: Paints for radiators, water-pipes, tiles, fireplaces, metalwork—stains and varnishes. Staining Floors: Types of stain—preparation—staining and finishing. Painting Floors: Use of special floor paints—preparation of surfaces—application of paint—liquid-lino paints. Colouring Solid Floors: Use of floor dressings.*

DISTEMPERING. *Sequence of Work: With and without other treatments. Types of Distemper: Pigment and mediums—‘washable’ distempers—coverage. Emulsion Paints: Description and uses—methods of application. Preparation: Cleaning walls and ceilings—stripping old wallpaper—use of stripping knives—repairs to plaster surfaces—use of size—types and application. Distempering Ceilings: Preparation of rooms—division of work—methodical application of materials—use of Claircolle—finishing. Distempering Walls: Working sequence—use of size—stippling—use of relief-finishing materials—textured finishes—use of a snap-line. Painting Walls: Preparation, application and finishing. Cleaning Tools and Equipment: Washing brushes and rollers—cleaning metal tools.*

PAPERHANGING. *Tools: Brush, scissors and roller—miscellaneous tools. Equipment: Stepladder—scaffold—paperhanging table. Materials: Types of paper—testing for colour-fastness—borders—pastes. Preparation of Surfaces: Importance of stripping*

walls—use of size—preparation of rooms. *Estimating: Size of a roll of wallpaper—table of estimates—trimming margins—borders. Preparation of Materials: Trimming selvages—advantages of machine trimming—types of edge-joints—use of a plumb-line. Pasting the Paper: Application of paste—keeping paste from face-side—folding the strips—soaking. Hanging the Paper: Sequence of work—smoothing and trimming—hanging procedure—dealing with corners—awkward places and light-switches—matching edges. Borders: Pasting and folding—joins. Panelling: Panelling schemes—marking out—hanging the papers—use of borders. Papering a Ceiling: Scaffold—sequence.*

THIS is a branch of home handywork in which the handyman can effect great savings in the cost of maintaining a house in good order and making it a more comfortable place in which to live. Interior decorating, which is dealt with in this section, is, of course, closely related to exterior decorating, which is dealt with in the following section, and many of the processes are common to both interior and exterior work. Any special outside applications will be dealt with in the next section. As with any other branch of handywork the tools used for interior and exterior decorating should be of good quality and they should be well cared for. Before planning a decorative scheme some thought should be given to the sensible use of colour.

The choice of colour in the home is a very personal matter. Colour can have great effect on the personalities of the people living in the house. Individuals react differently to a colour, and when planning decorative schemes it is necessary to consider the tastes of all those living in the home. Colour can do much to alter and improve the appearance of a room; in the same way the use of patterned fabrics, wallpapers, etc., can do much to offset the bad points in a room. Although this matter of colour and pattern is so essentially a personal choice, there are many people who have had no opportunity to develop their sense of colour; if the home handyman comes into this group he will do well to seek guidance by studying some of the fabrics and wallpapers designed by well-known artists. When planning a scheme of decoration it is necessary to consider the size and shape of the room to be decorated, in relation to the colour scheme decided on. The use to which the room is to be put should also be kept in mind when selecting a colour scheme.

All shades of colour are derived from the three primary colours, red, yellow and blue. These three colours when mixed can produce an infinite variety of shades. All colour is closely related to light; some colours attract light—others deaden it. Colours which are pale and light, when used on walls or ceilings, have the effect of receding, thus making the room appear much larger than it is. Deep intense colours make a room appear much smaller than it is. Red and orange are strong colours, and hard on the eyes, and they should be used in small quantities. Blue and green are cool colours and restful to the eyes, and they are ideal for making a small room look larger. For small rooms it is best to keep the colour

scheme as simple as possible, and schemes built round the shades of one colour are often very successful. Try not to use more than one contrast in a room and keep the colours in proportion—darker colours should always be used in smaller quantities than lighter colours. White is often used in contemporary colour schemes and has much to recommend it; it makes the most of all the light in a small house and provides an excellent background for other colours. The disadvantage of white is that it can be dull and monotonous unless relieved with other shades. When planning the scheme the handyman should remember that the woods of the furniture will have colour values of their own, and this factor should be carefully considered. In small rooms a deadwhite ceiling is apt to emphasize the smallness of the room; a slightly lighter tone of the main wall colour is better than white for ceilings of small rooms. If the rooms are too high in proportion to their size—this often happens when a large house is made into flats—a darker tone of the main wall colour used on the ceiling will have the effect of lowering the ceiling. A light pale colour used as a basic background throughout a small house or flat, gives unity to the decoration and gives a sense of greater space, but schemes of this nature need plenty of variety in the colours chosen to enliven the basic background of each room.

In general, when a room is used as a working-room, e.g. kitchen, or is only used for short periods of the day, such as a dining-room, bright stimulating colours are a good choice. In bedrooms more restful shades of colour should be chosen. Special care should be taken when choosing colour for a small child's room as it is here that the first development of children's latent colour sense takes place. Choose clear, true colours for children's rooms and avoid those shades which are obtained by adding black to a colour; for instance, dulled pinks and mauves are often very charming to the mature person, but tend to deaden a child's sense of colour.

If you are not very sure about your ability to design a successful colour scheme, choose a basic colour for the room and select a wallpaper and curtain fabrics after deciding on the basic colour. Modern papers and fabrics are so well designed that it is easily possible to work out a complete scheme from one or the other. For example, suppose the choice for curtains is a printed linen, with cream background and all-over design in green and red. Match the cream of the fabric for the paintwork, the green for chair-covers, choose a soft tone of pink for walls and ceiling—a grey and red patterned carpet would complete the scheme. Or perhaps a grey/blue wallpaper with a delicate white tracery over it is selected for a bedroom. Match the paintwork to the white, and use a fabric with a matching blue/grey background for curtains, with a small pattern on the curtain fabric in gold and donkey brown. Match the gold for a bedspread and the donkey brown for the floor-covering to devise a pleasing scheme.

The first aim in decorating a small sitting-room is to make it appear as large and airy as possible. In decorating a small room it is wisest to choose a small

patterned or plain fabric, relying on the texture of the fabric to give character to the scheme. Otherwise the windows may seem out of proportion in the general scheme and only emphasize the smallness of the room. Many lovely sitting-room schemes can be built up from a bunch of flowers—for instance, a bunch of marigolds which contain practically every shade and tone of yellow. Use soft cream for the walls and paintwork, cretonne in marigold colours for the curtains and chair-covers, which should be piped in green, with leaf-green cushions to offset the bright colours and with the floor, or its covering, of medium oak. This will give any room a sunny look on the dullest of days. Another example: a curtain fabric in a lovely mauve shade, patterned with flowers in shades of pink and beige with touches of blue and palest green leaves. A delightful scheme could be built up from this fabric. Plan to use pale, pinkish beige for walls and ceiling, with the paintwork one shade darker—one wall, or wall alcoves, could be in palest blue. A deep beige carpet would look well on the floor and the upholstery might pick up the green of the leaves, either in a plain coloured fabric with an interesting texture, or in green and beige regency stripes.

Stronger colours can be used for dining-rooms because the family will only be using it for a few hours each day. The chief point to remember in planning a dining-room colour scheme is that the furniture in this room is mostly of wood, and if that wood is dark it is very easy for the dining-room to become rather sombre and dull. Contemporary furniture, being very light in design, lends itself to a reasonably light-hearted scheme of colour. Again, taking the scheme from a well-designed fabric, choose a printed linen in white, grey and geranium red. Choose a pale cream for walls and woodwork, a gay primrose yellow for the ceiling and a good brown for the floor. Make loose cushion-pads for the chairs in a plain linen to pick up the red, to produce an overall scheme which will be gay on the dullest day, yet with nothing crude in the colours. Alternatively, the use of a pale grey and chalk white paper on the walls would be very charming.

If the scheme is to fit in with furniture of older design, a flower-print picture framed in a narrow gilt frame makes a good starting point for a scheme of decoration. For example, a picture of soft glowing chrysanthemums contains a wonderful harmony of colour on which to base a scheme with walls of ivory or very pale cream to make a background for the polished furniture. The ceiling could be the same shade as the wall colouring, or a shade darker according to the height of the room. Pick a dusty pink or soft near-orange colour of the flowers for the paintwork of the room. Stain and polish the floor a dark brown and add rugs in the grey/green of the chrysanthemum leaves. Choose a cheerful cretonne in pinks, yellows and bronze-brown for the curtains. This scheme will provide a room of quiet dignity and will always give a warm welcome.

Nearly everyone carries in their mind's eye the picture of their ideal bedrooms, which are often the prettiest rooms in the house. An important point to remember when planning bedroom schemes is that bold pattern designs on fabrics or wall-

paper eat into space, giving an effect of smallness, and should always be used sparingly. If the draperies of the bedroom are to consist of curtains and bedspread only, these will look well in a matching fabric, but if it is planned to have a curtained dressing-table and stool in addition, and perhaps a small armchair covered, a matching pattern used extensively will perhaps become rather overbearing. Select one of the colours of the fabric and use this in plain fabric for covering the chair, stool and dressing-table. Alternatively, choose a fairly strongly patterned wallpaper and have all the drapes in a plain fabric picking up one of the colours in the paper. Colour in a bedroom has to play two parts—if it is to do this successfully it must be chosen with the utmost care. In the evening the room must look restful and quiet, but in the morning the same room must have an air of stimulating freshness.

A decorative piece of china may give inspiration for a bedroom colour scheme. The colours are usually soft and at the same time fresh, while the piece of china itself makes a dainty decoration for the room. A soft pastel colour scheme could be worked out with a small china vase with a design of rose-buds on a pinkish-cream background with white pin-spots. The ceiling and paintwork in the room may be matched to the palest mauve-blue tint at the base of the rose-buds; the walls papered in the soft pink-cream of the china background, while the floor is covered in the pale green of the leaves. Curtains and bedspread may pick up the deep pink of the rose-bud. A small armchair covered with a floral fabric in these colours will provide an interesting touch of pattern.

Kitchens need a colour scheme to agree with the colours of kitchen equipment. While kitchen equipment is now made in a good range of bright, gay colours, many people prefer to obtain all their equipment in a white, cream or grey shade. This is a very sensible idea which allows for a change of colour in your kitchen from time to time. Modern kitchen equipment is expensive, and most of it is designed to last many years. Therefore, if you buy a red cooker now, you may find yourself restricted to a red and white kitchen colour scheme for many years. Whereas a cream-coloured cooker will be suitable in your red and white kitchen and many other redecoration schemes. Pale coloured walls, with white or cream woodwork, always look cool and attractive in kitchens. Curtains and tie-on cushions for the chairs can be from fabrics in any bright design and colour as long as they are easily washed; floor tiles or lino can echo the darkest of the colours in the curtains.

Bathrooms in modern homes should be kept, as far as possible, in one colour. For the really small bathroom, all-white walls, ceiling, bath and basin give the room an appearance of space, and colour can be introduced at the window and on the floor with, for instance, candy-pink and white striped curtains and pink lino on the floor. If the room is larger some of the lovely soft yellows, blues and greens, for basin and bath, against walls of a similar shade, will look modern and attractive against a black, lino-covered floor.

The first essential when considering a scheme for a hall is that it should be welcoming. Plain walls with a carpet and stair carpet in a deep jewel-colour always look tasteful and colourful: window curtains and lampshades can add a touch of pattern to this otherwise plain scheme.

Never try too hard to plan a colour scheme. Let your instinct be your guide, and you will be surprised how well a scheme will work out. Most people have a pretty good sense of colour, if they are not afraid of trusting it.

PAINTING

The tools and equipment used for painting interior woodwork, metalwork and walls may be divided into two groups—those used for preparing the surfaces and those used for applying the decorative materials.

Cleaning Down: If the old surface is painted wood which is in a reasonably good condition, it should first be washed with warm water and sugar soap. The surface should be well rinsed with clean water and left to dry before rubbing down and applying the first coat of paint.

Rubbing down is done with glass-paper folded round a block of wood or cork (*Fig. 100*). The glass-paper may be from grade *one* to grade *middle-two*, according to the condition of the surface of the work—the lower the glass-paper grade-number, the finer the abrasive surface. For moulded surfaces the block should be shaped to fit the contours of the moulding (*Fig. 100*). A soft 4-in.-wide brush (*Fig. 100*) is used for cleaning surfaces of sanding dust. The glass-paper—and all tools employed for preparing wood surfaces—is *always* used in the longest direction of the work.

If the old surface of painted woodwork is in poor condition—*lightly* pitted and blistered—it should be scraped with a shave-hook, the irregularities later being filled with a patent compound to the level of the surrounding surface. Shave-hooks are obtainable with headblades of three different shapes—triangular, pear-shaped and multi-shaped—as illustrated in *Fig. 100*. The multi-shaped shave-hook is the most suitable tool for general use.

Stripping: If the painted woodwork is in very bad condition—thickly encrusted with numerous layers of old paint which have become badly blistered and scored—it will be necessary to strip down to the bare wood. This may be done in one of three ways: (1) by scraping, (2) by using a solvent, (3) by burning.

Scraping is a lengthy and tedious process which must be done carefully to avoid cutting into the wood with a shave-hook. It may be confined to blistered parts of old paintwork—usually window-frames—the raised edges of blister-pits being cut down with a flat-sided pumice-stone, lubricated with water.

Paint solvents are corrosive and must be used with care. There are several good proprietary brands—usually labelled 'paint removers'—which should be used according to container instructions. Apply solvent with an old brush, treating

a small area at a time. Leave until paint wrinkles, scrape softened paint from wood with a shave-hook or stripping knife. The basic tool outfit should include three knives with blades of different widths—1 in., 2½ in. and 4 in. measured across the cutting edge. The solvent used *must* be thoroughly neutralized before painting the wood; in most cases petrol is the best neutralizer, but this may vary according to the make of solvent used, and the handyman is advised to read container instructions carefully before using a paint solvent.

Solvents are suitable for stripping paint from small areas of woodwork, but they may be found costly in use for treating large areas—also uneconomical in the expenditure of time. Large amounts of badly-surfaced woodwork are best stripped by burning off. This may be done with an electrically-heated tool or with a blow-lamp. An electrical paint-stripper consists of a small reflector bowl affixed to a handle; one or two elements are fitted inside the bowl which is covered by a wire-mesh guard that prevents the source of heat being brought too close to the working surface. The tool may be plugged into any source of electricity supply of the same voltage as the tool. The stripper is then moved over the surface of the work and the softened paint is removed with a shave-hook or stripping knife.

There are two kinds of blowlamps suited to home-handyman use; one is fuelled with paraffin, the other with butane gas. The butane-fuelled blowlamp is considered the safest for home use and is less complicated to operate than a paraffin-fuelled blowlamp.

The butane lamp consists of two main parts—a cylinder of butane gas and a 'gun'. The cylinder is fitted with a threaded cap that unscrews to expose a simple valve. The connecting socket of the gun is also threaded to screw over the top of the container, opening the valve which is regulated by a knurled knob which is positioned at the back of the gun, over the pistol grip. The gun is screwed tightly on to the cylinder, the knurled knob turned anti-clockwise by finger pressure, and the lamp lights instantly when a lighted match is held under holes drilled in the barrel near the nozzle. The intensity of the flame is easily regulated to suit the type of job—a small flame for burning off sash mouldings round windows, a fiercer flame for large, flat surfaces. A multi-shaped shave-hook and a medium-broad stripping knife are used to strip the paint softened by the flame of the blowlamp. Note that the tool *follows* the flame. The difference in use between a shave-hook and a stripping knife is that the former is used mainly on mouldings and narrow surfaces and is *pulled* against the softened paint, while the stripping knife is used on large, flat surfaces and is *pushed* into the softened paint.

A paraffin blowlamp is, as its name implies, fuelled with paraffin. The fuel container is fitted with a pressure pump and this is worked to increase the pressure in the chamber so that the paraffin is forced through a small hole into the firing nozzle, which is similar in shape to the nozzle of a butane-fuelled blowlamp, and the vaporized fuel is automatically mixed with air. Also, like the butane lamp the paraffin blowlamp is fitted with a simple valve which controls the flow of the

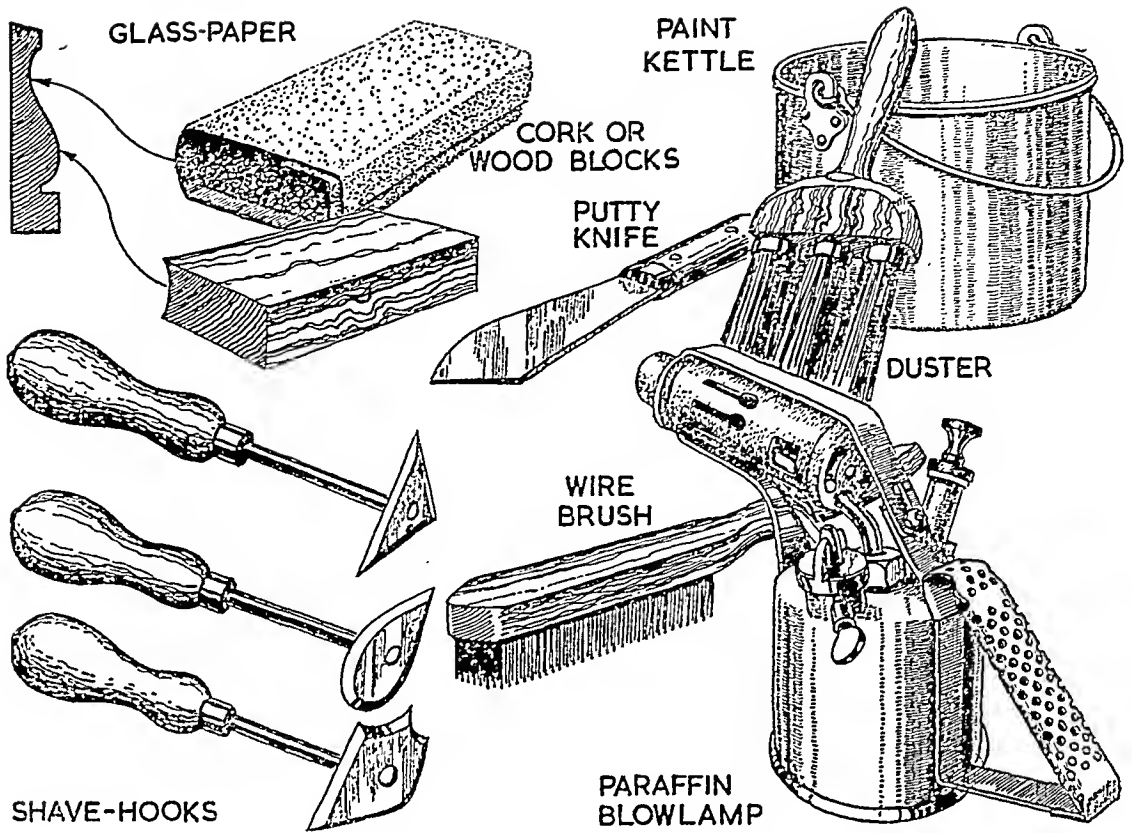


Fig. 100. Equipment required for preparing painting surfaces

paraffin fuel under pressure. Unlike the butane blowlamp the paraffin lamp does not ignite immediately, and it is necessary to heat the nozzle so that the spray of paraffin automatically mixes with the air drawn through the nozzle vents. This heating to commence burning is effected by soaking a piece of rag in methylated spirit and wrapping this round the nozzle of the lamp; the meth-soaked rag is then touched off with a lighted match and after a few seconds the nozzle is warm enough to ignite the fuel by opening the fuel valve of the blowlamp, which should then produce a fierce, clear flame. The strength of the flame can be regulated by adjusting the control valve; when the flame loses its strength more air is pumped into the fuel (*Fig. 100*) container. For the purpose of simplicity in use it is considered that a butane-fuelled blowlamp is more suitable and is easier to handle than a paraffin-fuelled lamp (*Fig. 100*).

The handyman-decorator should develop the good habit of using a paint-kettle. This is a container into which mixed paint is poured. It is made of galvanized

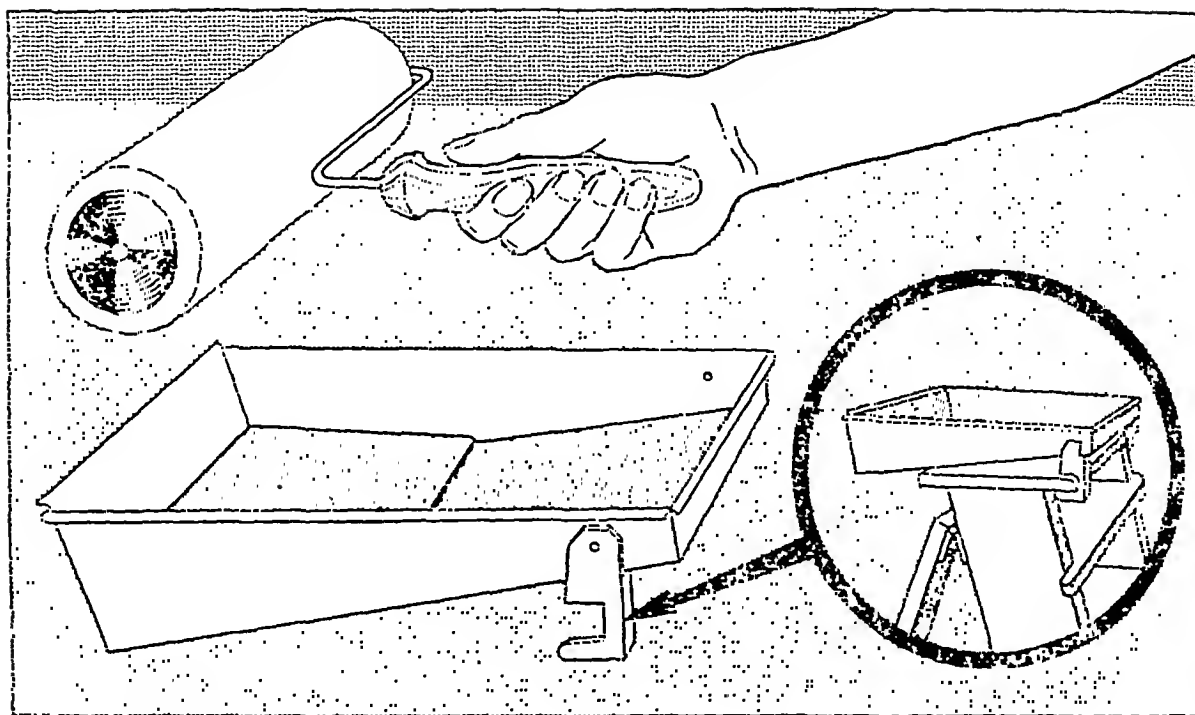


Fig. 101a. A paint-roller and tray. Note the notched legs of the tray—these fit over the edge of the top of a step-ladder

iron and fitted with a substantial handle (Fig. 100). The use of a paint-kettle enables the paint to be handled more easily than from a paint-tin and there is less likelihood of knocking the paint-kettle over than a tin of paint. Also, for the upper part of rooms and exteriors where it is necessary to carry the paint, the use of a paint-kettle will be found advantageous. In the case of small jobs requiring only a small amount of paint, the tin may be placed in the kettle and held in place by inserting strips of rolled newspaper between the outside of the paint-tin and the inside of the kettle. Paint-kettles should be cleaned after every job, by tipping any paint left over back into the container and wiping the inside of the kettle with a rag dampened with turps substitute. If paint is allowed to harden inside the kettle, this may be removed by burning a turps-soaked rag in the kettle and scraping the inside surface with a putty knife as soon as the heat softens the paint.

A putty knife as illustrated in Fig. 100 is, as its name implies, used mainly for working putty. Either for finishing edges over windows when reglazing, or for filling holes and cracks in woodwork before painting. A good quality putty knife will have a flexible blade.

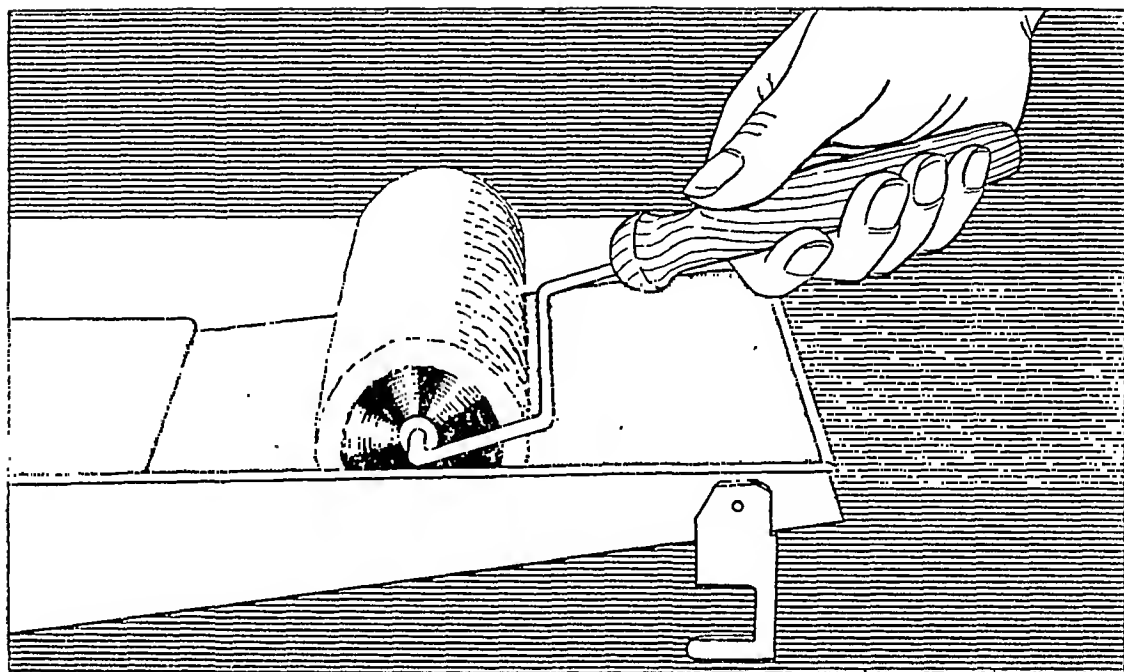


Fig. 101b. How a paint-roller is loaded. The roller is run into the paint which is worked out on the sloping base of the tray

Cleaning materials consist mainly of old pieces of rag which will be found invaluable for many interior decorating jobs. The cleaning materials may be supplemented by the addition of a decorator's cellulose sponge.

Equipment: The main piece of equipment for painting interior surfaces is a step-ladder. It should be sturdy in construction and of a sensible height to permit easy access to the topmost decorating surfaces of rooms. Instructions for making a suitable step-ladder are given on page 176 in the section on Carpentry. The tools described above are the main ones used in preparing interior surfaces for the application of decorative materials. This basic outfit may be enlarged to include a wire brush (*Fig. 100*), which will be found especially useful when preparing metal windows for painting. A wire brush has many uses for exterior decorating.

Tools for Applying Paint: Paint may be applied to wood surfaces with a brush, a roller or a spray. The roller consists quite simply of a metal cylinder which is covered with lambswool; the revolving cylinder is mounted on an axle which is fitted into a wooden handle. The roller is used with a metal tray which is used to hold the paint, in place of the usual can or kettle. The roller is dipped *lightly* into the paint, rolled on the sloping end of the tray to spread the paint evenly,

and is then rolled on the surface of the work. When dealing with wood surfaces the use of a paint-roller is restricted to large flat areas, such as flush doors. A roller is not suitable for coating narrow surfaces or moulded edges; these are best painted with a brush. The paint-tray has notched legs which fit over the edge

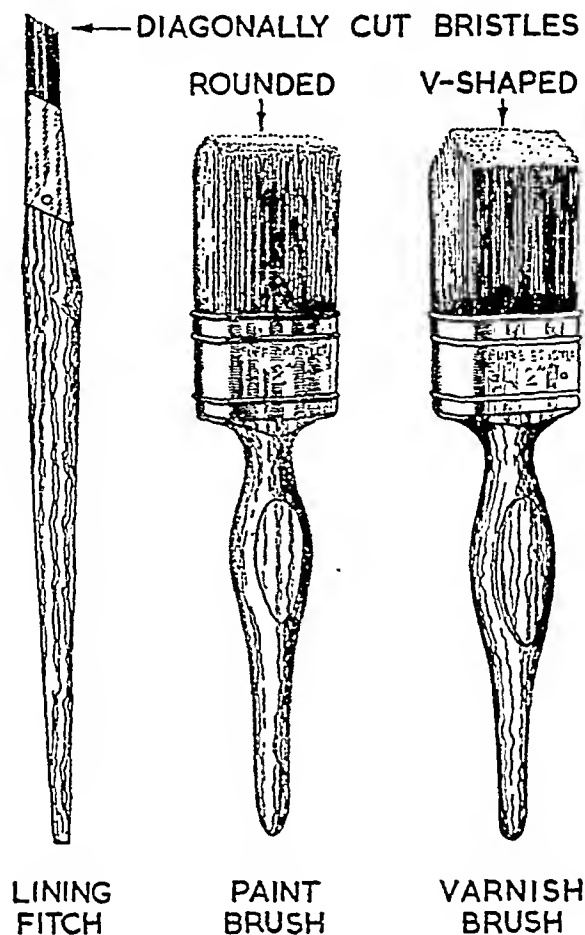


Fig. 102. Types of brushes

of the top step of a pair of steps. More information about paint-rollers is given later when dealing with the painting and distempering of walls and ceilings.

Paint-brushes are available in different sizes defined by the width where the bristles meet the ferrule—the band of tin-plate round the broadest part of the handle. The basic outfit should include a 1-in., 1½-in., and 2-in. brush for general purposes. Wider brushes—3-in. and 4-in.—are used for painting large surfaces. A smaller brush than those listed will be required for dealing with edges

of sash mouldings, and for awkward corners; this may be a $\frac{1}{2}$ -in. paint-brush, but the best tool for amateur use is a lining brush. A 1-in. lining tool is a brush with (Fig. 103B) a thinner bunch of bristles than an ordinary paint-brush of the same size; the tips of the lining bristles are cut diagonally, as shown in Fig. 102.

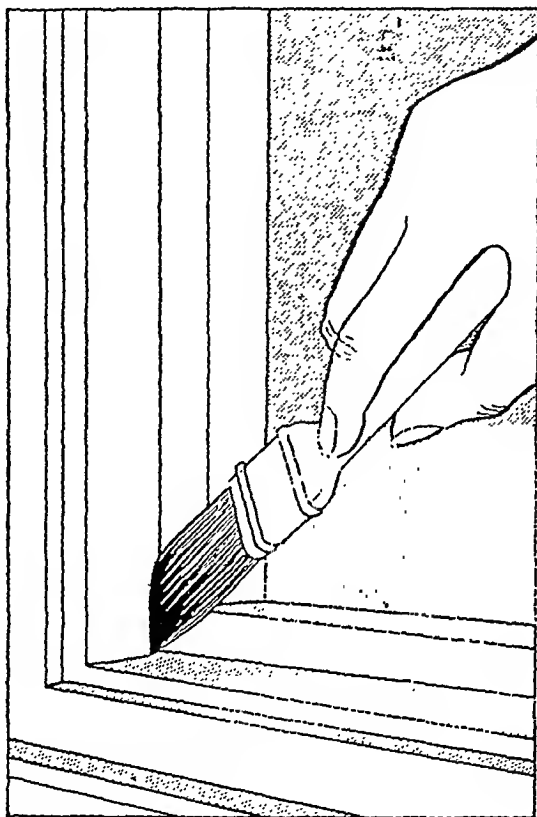


Fig. 103a. The slanting bristles of a lining brush facilitate the neat painting of the corners at the edges of window-frames

The use of a lining brush enables the handyman to deal quickly and competently with 'cutting in'—the term applied to painting edges neatly. Purchase good quality brushes; the small extra expense will be found a wise investment. The tips of the bristles of a paint-brush should be rounded, as shown in Fig. 102, not V-shaped varnish bristles.

In addition to the tools for applying paints described above the handyman-decorator may be interested in the possibility of applying paints and other liquid

decorating materials with a paint-spray. There are many different types of paint-sprays, including one type which works from a vacuum cleaner, another for which the pressure is derived from a foot pump, and commercial paint-sprays the air pressure for which is generated by a compressor. These, of course, have their advantages and disadvantages, but for general use the inexperienced home handyman will find an electrically powered paint-spray most suitable for use. It comprises a detachable container of thick ribbed glass which is screwed to the head. Incorporated in the head, and operated by a switch in the pistol grip, is a vibrator which acts in the same way as a small pump. This forces air into the

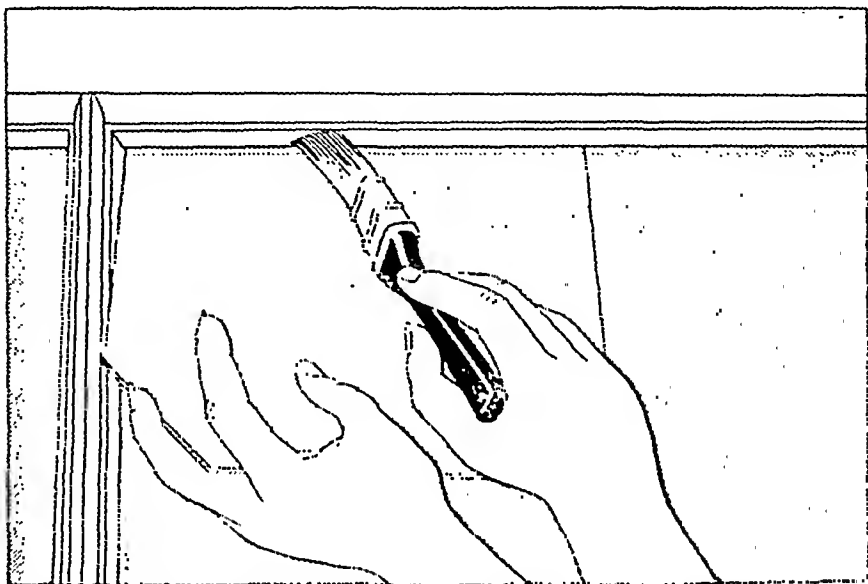


Fig. 103b. Illustrating the use of a shield when painting edges of windows

container so that the paint is forced up a plastic tube at great pressure into the nozzle compartment, where it is blown out as a fine spray. A type of electrically-operated, vibrating-head paint-spray has an adjustment valve which regulates the strength of the spray, thus allowing it to be used for a variety of jobs. For instance, it may be used for spraying fruit trees with insecticide and other similar jobs in addition to coating walls, ceilings and woodwork.

It should, of course, be appreciated that most of the small jobs of interior decorating may be done just as quickly with a brush as with a paint-spray and use of a paint-spray involves masking the surfaces surrounding the area being sprayed. The inexperienced decorator will, in many cases, find masking advantageous when using a brush as well as a spray; this particularly applies to cutting in at the edges of window-panes and at the bottom edge of skirting-boards, where neat brush control is essential. A simple form of masking to ensure the painting

of neat edges consists of using adhesive cellulose tape. This is simply attached to the edges of surrounding surfaces before the job is commenced and the tape is stripped off after the paint has hardened. Another method of masking when using a brush for cutting in edges, consists of a thin metal or stiff cardboard shield as illustrated in *Fig. 103b*.

PAINTING MATERIAL

The materials described for painting interiors consist of materials used for preparing surfaces in addition to the actual paints themselves.

Knotting: This is a prepared shellac dissolved in methylated spirits. Knotting is obtainable in small quantities from local paint shops. It is used mainly to seal knots in new or bared wood before it is primed. The protective seal formed by brushing knotting over the knot, and a small area surrounding the knot, prevents resin exuding from the wood and creeping through the new paint. Knotting may also be used as a sealer for other purposes and this use will be explained later in these instructions.

Fillers: Fillers, as their name implies, are used for filling small holes and cracks in wood. The process of filling large holes is known as 'stopping'. In interior decorating the most common type of filler or stopping used in preparing surfaces is glazier's putty. This is obtainable in small quantities from local paint shops and is best purchased in sealed tins rather than loose quantities wrapped in paper. Putty is a mixture of whitening and linseed oil which hardens on exposure to air. When putty is not in use the container should be kept sealed or the putty will harden in the tin. Before stopping holes and cracks with putty—this is usually done after priming new wood, or undercoating old surfaces—the inside surfaces of the crack or hole should be coated with paint. If this is not done the bare wood will absorb the linseed oil in the putty and the fresh stopping will shrink and fall out. In addition to putty there are several forms of patent fillers and stoppers, but these are used mainly for preparing furniture before staining and polishing. However, some of them may be used when preparing interior surfaces. The most common of these is plastic wood, which hardens rapidly after exposure to air. The plastic wood is pressed into the crack or hole with a putty knife and is modelled slightly proud of the surface—this simply means to stand above the level of the surrounding surface. The plastic wood shrinks slightly as it dries and after drying, any surplus stopping, still proud of the surface, is cut down with glass-paper. If the repair is a large one it will be necessary to apply this type of filler in several stages. If this is not done the exposed surface of the plastic wood will harden to form a skin over the still soft core of the stopping, which may take a considerable time to harden.

For most purposes the handyman-decorator will find putty the most suitable and economic form of stopping and this is especially so with interior work. How-

ever, there is a variation of putty; this is a patent, finely-powdered plaster-like material used for stopping holes and cracks in walls and ceilings. This powder when mixed with water may also be used successfully for filling holes and cracks in wood surfaces, and it will be found especially useful for preparing large flat surfaces, such as the face sides of flush doors. The powder filler is mixed according to container instructions and is then applied with a putty knife or with the edge of a broad stripping knife. The powder filler is then left to harden, which it does very quickly, before sanding down. There is one important thing to appreciate about these fillers, although they are satisfactory for stopping wood surfaces; the hardened filler may not be quite as hard as the surface on which it is used, and if the sanding is done too vigorously, this will cut the filler below the decorating surface and the blemish will show through the filled job.

All the preparation in interior decorating should be done thoroughly. Success in finishing with a professional surface is not due entirely to the way in which coats of paint are applied. The quality of the surface finish depends on the thoroughness of preparation.

Abrasive Materials: Abrasive materials are used for preparing surfaces before redecorating them. For most purposes glass-paper is the most common abrasive material, and it is best used over a cork or wooden block as previously described. Glass-paper is obtainable in many grades of coarseness and for most purposes the amateur interior decorator will find grade middle-two most suitable for rubbing down. Worn pieces of grade middle-two glass-paper may be used instead of new pieces for rubbing down before applying finishing coats. In addition to the ordinary type of glass-paper, a waterproof grade is obtainable. This may be used when cleaning the paintwork surfaces down with sugar soap as previously described. The waterproof glass-paper does, in most cases, provide a smoother finish than the unwaterproofed grades. Of course, this type of preparation does require more time, but it is recommended for a superior quality finish.

As an alternative to glass-paper, garnet paper may be used. Garnet paper has tougher, sharper particles than glass-paper and will, of course, last longer. It is mostly used in preparing surfaces in the form of sanding discs which are fitted to electrical drills of the type described in the section devoted to The Handyman Basic Tools. Another abrasive for preparing interior surfaces for decorating is pumice-stone or pumice powder. Both, or either, are used with water as a lubricant and these abrasives may be used when an especially fine surface finish is required, such as in the case of front doors. With all water-lubricated abrasives the treated surfaces should be well washed down to free them from grit and dust, and after rinsing, all surfaces for painting should be allowed to dry thoroughly before application of following coats of paint. This thorough-drying process is essential to good workmanship. If paint is applied on a damp or greasy surface it will deteriorate rapidly. The abrasive used for cleaning metal surfaces is emery cloth, which is also obtainable in a good range of coarseness.

PAINTS

The handyman can purchase all types of paints in small quantities, and these are fully prepared ready for use. Paints are obtainable in a very wide range of colours and shades from local hardware stores and paint shops, and suppliers have colour cards which should be consulted before the job is commenced. The handyman painter should appreciate that, although the improved production of paints has been developed to a great extent in the past few years, there is no universal paint—there are different kinds of paint for different purposes. These may be broadly divided into two main groups: materials for painting exteriors, and materials for painting interiors. There is a difference in the quality of exterior and interior paints; although exterior paints may be used for interior painting, painting materials manufactured specifically for interior purposes should never be used for exterior decorating. For interior work the types of paint may be divided into priming paints, undercoatings and finishing paints; and there are special paints for special materials, such as zinc and asbestos, and galvanized iron, etc.; these are dealt with in the following section on Exterior Decorating.

Priming Paints: These paints, as their name implies, are used as first coatings. There are different priming paints for wood and metal. The use of priming paint is not necessary on surfaces that have been previously painted, unless any parts of the surfaces have been rubbed bare, or the paint has been removed with a blowlamp or a paint solvent. There are special priming paints for different types of materials; that used for woodwork is usually termed pink priming and the mixture contains a good proportion of red lead. The priming materials for metal may vary and these are dealt with more fully later in 'Exterior Decorating'.

Although pink priming paint is the one in most general use for woodwork, and is quite satisfactory for coating new timbers, a recent development in the manufacture of primings has resulted in the production of an aluminium priming paint which is extremely good. Aluminium priming paint is, of course, made from the metal from which it derives its name. It is easy to apply and dries with a very good surface to provide a solid foundation for the application of following undercoats and finishing coats. It has only one drawback, and that is it must be frequently stirred when applying it; if this is not done the metallic powder will sink in the medium to the bottom of the container. Aluminium priming paints also act as sealers and they are especially useful when coating dark woods that have to be finished with a light-coloured paint. A very good feature of aluminium priming paints is that they act as sealers over surfaces previously coated with bituminous compounds, creosote and other wood preservatives. Some manufacturers claim that aluminium paint eliminates the use of knotting but it is generally advisable to seal knots in the usual way before the use of every type of primer.

Undercoatings: The main purpose of undercoats is to provide a solid foundation over priming coats before the final work of finishing woodwork and metalwork.

Undercoats are very easy to apply, they have plenty of body and they dry with a dull flat finish. Before application of each coat of paint it is necessary to rub down the surface with one of the abrasive materials, usually glass-paper, as described above. The glass-paper has two functions: the main one is to cut down and smooth surface irregularities, also glass-paper provides a criss-cross series of fine scratches which provide a 'key' for following coats of paint.

Before the application of each coat of paint, it is necessary to dust the work after rubbing it down. Dusting may be done with a large clean paint-brush or with a 'duster', as illustrated in *Fig. 100*. The number of undercoats applied will depend to some extent on the condition of the old surface. In most cases two undercoats will be found sufficient before applying the finishing coat of gloss paint or enamel. In some cases, where surfaces are in very good condition it may be possible to apply one undercoating only, but this is usually very rare. Some types of finishing paints, particularly the synthetic ones, may also be used as undercoatings, and where this is applicable, manufacturer's instructions will be found on the containers. Paints used for undercoatings go quite a long way and a pint tin of undercoating should be sufficient to cover a surface of approximately 90 sq. ft., although this may vary between individual manufacturers. It is advisable, when carrying out interior painting, to use the same family of paints throughout the job and most manufacturers recommend what type of colour and undercoating should be used under their own finishing paints. It is sometimes difficult to estimate the exact amount of paint required, but all types of paints are obtainable in reasonably small quantities. The amateur decorator should be careful to avoid over-stocking with a particular colour or kind of paint, although a small amount left over is advantageous and may be used later for any retouching which may become necessary. The best way to estimate a job is to make a note of the amount of woodwork to be covered and buy the materials from a good colourman, or paint shop, where they will advise sensibly on quantities required. In the same way that it is false economy to use cheap tools, it is also bad economically to use cheap paints of any kind, and this applies equally to paints and other materials used in preparatory stages as it does to finishing coats. The difference in cost between good and poor quality paints is very small when related to the covering capacity of these materials, and the saving of cost of a small fraction of a penny on a square foot of paintwork may shorten the life of the job.

Paints for Finishing: Between different manufacturers there is some apparent confusion in describing finishing paints, but briefly these may be grouped under definite headings such as Hard-gloss Oil Paints or Enamels.

Hard-gloss finishing paints are also known as oil finishing paints because the medium which carries the pigments is linseed oil. Hard-gloss paint is suitable for almost every type of interior woodwork and most metal surfaces. They may also be used for painting walls and ceilings of bathrooms, kitchens, etc., and they dry with a good hard-wearing surface and are available in a very wide variety of

colours and shades. Where extra protection is required, as in the case of woodwork in kitchens and bathrooms, it may be advisable to use enamel finishing paints. Enamels have a harder drying surface than gloss paints but they have a shinier surface and may not be considered entirely suitable for painting woodwork and metalwork of sitting-rooms and bedrooms where a more restful finish is required. It will, of course, be appreciated that there are several kinds of hard-gloss finishes and enamels, at least according to manufacturers' advertisements, and the range of finishes may be extended by the inclusion of synthetic paints which vary from finishing coatings, which may resemble hard-gloss paints, to lacquers, which are really a superior form of enamel paints. Most lacquers are based on a medium of cellulose and they usually require very fast application to use them successfully. Although the description of the finishing paints is given as 'glossy' there are different finishing textures, described variously as 'suede' or 'eggshell', etc. Eggshell enamels are really midway between hard-gloss oil paints and enamel finishing paints and as their name implies, they dry with a dull, glossy finish, not unlike the sheen of an eggshell. These are particularly useful for woodwork in bedrooms, where a harsh glossy finish is not required. It must, of course, be appreciated that most types of finishing coats are made in two qualities—interior or exterior—and an interior quality paint should never be used for outside work.

In addition to the main types of finishing paints described above there is another category of finishing paints. Although manufactured under a variety of trade names they are generally termed 'Emulsion' paints. These are ideal for walls and ceilings (see page 214), but it should be made quite clear that, although they have often been used with apparent success, being water-based paints they do not provide adequate protection to wood and metal surfaces. Steam and damp can penetrate an emulsion paint, and in extreme cases it is possible for dry rot to attack the woodwork underneath. Use emulsion paint, by all means, for walls and ceilings, but *not* for wood or metal.

Application of Materials: To clarify the instructions given above, the following directions for applying the materials have been compiled to deal with the usual sort of room in the average dwelling-house. This method of setting out detailed instructions for applying the materials also serves to include some information about the sequence of work which is, of course, most important. It may generally be assumed that the method of application of all types of decorating materials, inside and outside the house, is to start from the top and work down. In this way completed work is not spoiled by splashes of paint and falling dust brushed from overhead surfaces.

The first part of the room to tackle is the picture rail. This should be followed by the window or windows and the next part of the job in logical sequence is the door and doorframe, finishing with the skirting-board. So start with the picture rail first and attack the old surface vigorously. The preparation may vary according to the state of the old surface. If the old surface is smooth and unblemished it is

best cleaned down with sugar-soap, as described in the first part of this section. Use of sugar-soap is the one process in home decorating that is done in reverse to the usual top-to-bottom order. When cleaning down with sugar-soap it is advisable to start from the bottom and work up or runs of dirty water may stain the

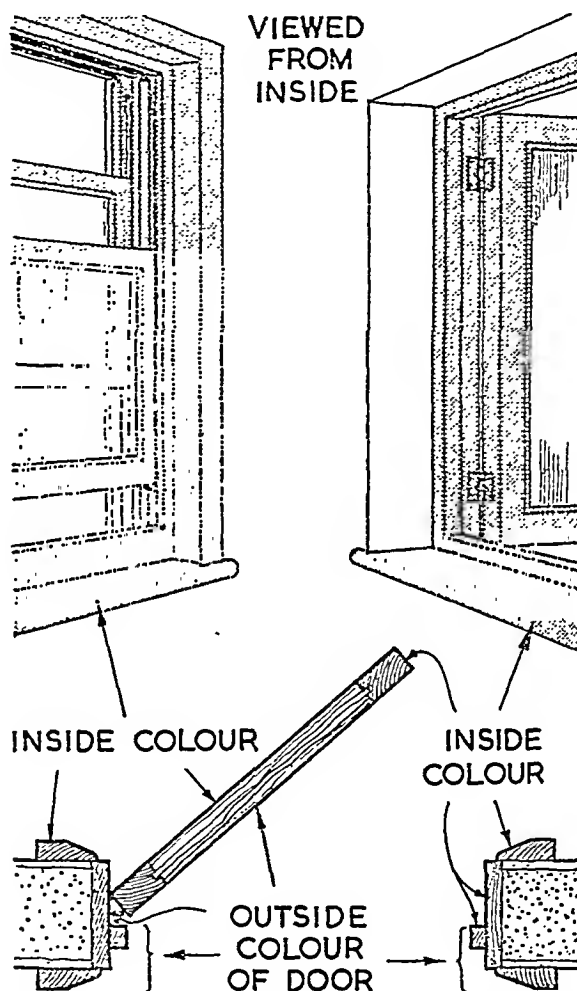


Fig. 104. Surfaces for treatment in painting windows

bottom of the work, and it will be found impossible to remove these stains. After washing down with sugar-soap the work should be rinsed and dried and may, before rinsing, be rubbed down with grade middle-two *waterproof* glass-paper. The glass-paper should always be used with plenty of force behind it and the paper should be changed as it becomes worn. Glass-paper is always used with

the grain of the wood, and the grain of the wood runs in the longest direction of the piece—picture rails, window members, doors, door-frames or skirting-boards.

If parts of the woodwork—and this particularly happens round window-frames that are exposed to strong sunlight—are blistered, but not badly blistered, the surface may be smoothed by scraping the woodwork with a shave-hook followed by vigorous rubbings with a water-lubricated pumice-stone. Any remaining signs of blister scars may then be filled in by using a patent powder-filler mixed with water and applied to the surface with a broad stripping knife. After allowing the powder to harden—this is best left overnight—the surface should be scrubbed with glass-paper and cleaned off with a duster before painting. If the blisters are very bad or if the old surface has been neglected and is thickly encrusted with gritty and treacly paint or varnish, it may be necessary to remove all the old paint, either by using a blowlamp, or a solvent, as previously described. It should, however, be appreciated that use of solvents or a blowlamp is rarely necessary for interior painting except in the case of a very old house, the paintwork of which has been coated so many times that the mouldings and edges are thickly encrusted with multiple layers of paint. For most surfaces all that is necessary is a vigorous rub down with glass-paper. Any bared surfaces or repairs to woodwork with new timber should be given special initial treatment consisting of coating knots, and a small area surrounding the knots, with patent knotting, as previously described, which is applied with a small brush. Follow the knotting with the application of one priming coat which may be a pink primer or aluminium priming paint, as previously described. Priming is only necessary on new or bared timber. However, when it is necessary to make a drastic colour change, say from black paintwork to very pale cream or white, a coat of aluminium paint may be applied before the usual undercoatings to kill the dark colour.

Wherever solvents have been used to remove old paint it is essential to neutralize the solvent before coating the wood with fresh paint. Directions for neutralizing are given with the different brands of paint solvents or paint removers. The neutralizer may be water, paraffin, turps or petrol according to the type of solvent. If the solvent is not neutralized it will attack the fresh coats of paint which will wrinkle and flake, usually some weeks after the job has been finished. When using glass-paper for cleaning down, it is essential to cover every part of the surface, including the quirks and corners of fine mouldings. This is best done by cutting a shaped block to fit the shape of the mouldings or edge as previously described. Alternatively, simple mouldings may be sanded down by wrapping the glass-paper over a decorator's cellulose sponge. After finishing the picture rail and dusting it, deal with the windows and frames next. When sanding window-frames take care to avoid scratching the glass with the abrasive, or it will almost certainly mark the glass. When painting windows and doors it is sometimes confusing to the inexperienced person which parts of the windows or doors,

and their frames, should be painted with the interior colour, and which surfaces should be coated with the outside paint. As a general rule it may be assumed that all surfaces visible from the inside are coated with the interior paint. The surfaces for treatment, in the case of sash windows and casement windows, are identified in the illustration (*Fig. 104*). Door-frame surfaces which come into the inside decorating are also illustrated in *Fig. 104*. Window-frames should be cleaned down in the same way as the picture rail, using plenty of elbow grease with the glass-paper and dusting all surfaces before carrying on with the next part of the job, which is the door. Where it is possible with windows and doors, it is advisable to remove the furniture before commencing work. The furniture is, of course, door-knobs, rim-locks, finger-plates and any other metal fittings, including sash fasteners and casement stays and handles. These may be left in position if removal is inconvenient, but this will entail a lot of extra work in cutting cleanly round the edges of the fittings. Finish the preparation of paintwork with the skirting-boards.

After cleaning down, the next job to be done is coating of any knots that have been bared when cleaning down, or coating of knots which have not been previously treated and from which resin has exuded through the old paintwork. Bare or new wood should be primed and any cracks or nail-holes should be touched in with priming paint, or this can be done with knotting. If there is no new or bare wood to prime, the use of knotting, which is fast-drying, for sealing inner surfaces of holes will speed up the work at this stage. If the work has been primed it should be left for about 24 hours to allow the paint to harden, when this first coat should be rubbed down with glass-paper before the next treatment. This consists of filling and stopping holes and cracks with glazier's putty, or patent powder-filler, or a combination of both. Powder-fillers are difficult to finish in gaps at the corners of mouldings. Whatever type of stopping is used it should be pressed well into the hole or crevice to completely fill it—it is bad practice merely to fill the top of the repair, leaving a void behind. Puttied fillings may be finished by smoothing them with a dusting-brush. Powder-filler should of course be left to harden before finishing by cutting it down level with the surrounding surface with glass-paper.

With all the holes and crevices stopped or filled, the work should be gone over with a duster to clean it before applying the first undercoating. The undercoat is applied in the same sequence as the preparatory work, starting at the top of the room and working down to finish with the skirting-board. The colour of the undercoating should be in sympathy with the colour of the finishing coat of paint. In most cases it will be advisable to apply two undercoats; the first coat should be allowed to dry before the second coat is applied, and the work is rubbed down and dusted before every coat is applied. In some cases the second undercoat may be eliminated for inside work, but this should only be done when the condition of the surface is exceptionally good. The second undercoat may be mixed with

some finishing paint to prepare a good basis for the final coat. A sensible proportion of undercoat to finisher is 50 per cent of each. The final coat of undercoat after drying should be sanded down before applying the finishing coat and each coat of paint should be allowed to dry thoroughly before the next one is applied. Sanding of the final undercoat is best done with the pieces of worn glass-paper used in the initial stages of preparing the surfaces. The finishing coat is applied in the same way as the undercoating, using a clean brush, and the last part of the job consists of replacing metal fittings to doors and windows.

If it is necessary to thin any coats of paint this should be done according to container instructions, using only the thinners specified. Most types of primers and undercoatings can be thinned with turpentine or substitute turps. Aluminium priming coat should not require thinning if it is kept stirred when it is applied, but should there be any thick deposit at the bottom of the tin this may be revived by thinning with a little methylated spirit. There is one very important feature of preparation which many handymen—sometimes even professionals—overlook, and this is the thorough stirring of the paint. It is *essential* to thoroughly activate the pigments in the medium and it takes *at least* 10 minutes to really stir a tin of paint. The best thing to use is a piece of wood, the end of which should be sharpened to a wedge shape. This should be worked in a circular movement until the bottom of the tin feels clean and continued stirring should be carried on for some minutes after the bottom of the tin has been cleaned by the stick used for stirring. If the job is a long one involving a great deal of time in cutting in, particularly with windows with small squared panes, the paint should again be stirred as the job progresses. If this is not done the full benefit of the paint will not be obtained and the worker will merely brush on a partly loaded medium, the main body of the pigments remaining at the bottom of the tin out of reach of the brush.

How to Apply Paint: In addition to dusting the work before applying a coat of paint, the duster should be used before each section of work is coated. The paint-brush should be a sensible size in relation to the size of the work. It is bad practice to use a brush that is either too small or too large for the job in hand. In most cases for interior painting the handyman will use more than one brush at a time. A 1-in. brush for edges and small surfaces with a 1½-in. or 2-in. brush for large surfaces, such as skirting-boards or door panels. For fine work—the edges of sash mouldings, etc.—a lining brush, as previously described, should be used. When changing over from one brush to another, the brush previously used should be wiped on the side of the can to unload as much paint as possible. The secret of success in amateur decorating is to get the paint *in* the brush and not on it. The bristles should be dipped into the paint for about a third of their length and the loaded brush should then be worked against the inside surface of the tin or paint-kettle, *not* scraped on the rim of the container. In addition to correctly loading the brush, this method will prevent a great deal of spots and splashes, and messy smears due to paint running down the outside of the container.

All kinds of paint should be worked as quickly as possible, and to obtain the best results paint should be evenly flowed on the surface. It is bad practice to apply paint too thickly, for not only will this lead to runs and tears but it will thicken the fine edges of mouldings and corners. The correct amount of paint to cover any given surface should be sufficient just to cover the previous application, without leaving any bare patches. Commence from a corner and work towards the other end of the piece, laying off the paint in the direction of the unfinished part of the section of the work being treated. 'Laying off' simply means the final movements of the brush, which should always be in smooth strokes from the first corner and running the longest way of the work. The next section treated should be laid off in the direction of the first section. During the work of applying the paint the handyman should keep by him a piece of rag dampened with turpentine or paraffin and use this to wipe up any spots or smears as soon as they are noticed. It is bad practice to leave splashes until the job has been finished; cleaning up should always be done as the work progresses. After a little practice the handyman will get the feel of the job and should make very few splashes. Brush control is largely a matter of practice, it is something that cannot be learned from the pages of a book. If, however, the instructions given here are carefully followed, the most inexperienced person should have no difficulty in applying paint. One important habit to develop which will considerably reduce splashings is to work the brush with a clean sweeping movement of the wrist, rather than with a movement of the elbow and at the end of each brush-stroke the brush should be turned so that the bristles do not leave the surface of the work. Runs and tears can be avoided by slightly underloading the brush when coating corners and edges, particularly corners of mouldings. The bristles should be well tucked into corners and laying off should be done away from corners.

One of the most frequent signs of amateurish work is what is known professionally as a 'fat edge'. This occurs on projecting corners of the work and it is due to wiping paint on the surface previously painted when the adjoining surface is coated. Whenever laying off a surface with a projecting corner the brush should always be run on the edge of the adjoining surface to remove any surplus paint at this point. If the finishing coat of paint appears to be thick and is difficult to apply, the paint should be warmed. This thickening of finishing paints, particularly enamels, occurs in cold weather. Improved fluidity is obtained by standing the can or tin of paint in a bowl of hot water for a few minutes.

Painting Windows: The sequence of painting a window is roughly the same as the general work of painting. The job should be done as far as possible so that any surplus paint does not drop on to surfaces previously painted. Windows are best done by painting the sash-frame first, completing each bar or stile before the next one is coated. Do the fine work of cutting in and painting the mouldings before painting flat surfaces. Leave architraves and the framework of the window until the sashes have been coated and leave the sill until last of all. Incidentally

don't forget to paint the underside of the sill. When painting doors and windows the inside bars and stiles should first be coated so that when laying off the remaining parts it does not interfere with the parts already coated. To clarify this, a simple example is given in *Fig. 105*. This shows the corner of a sash-frame and it will be seen from the illustration that the top rail could be coated before painting the stile at the side. This is because the stile overlaps the end of the rail and if the rail is painted first the stile may be coated and laid off without interfering with the paint previously brushed on to the rail.

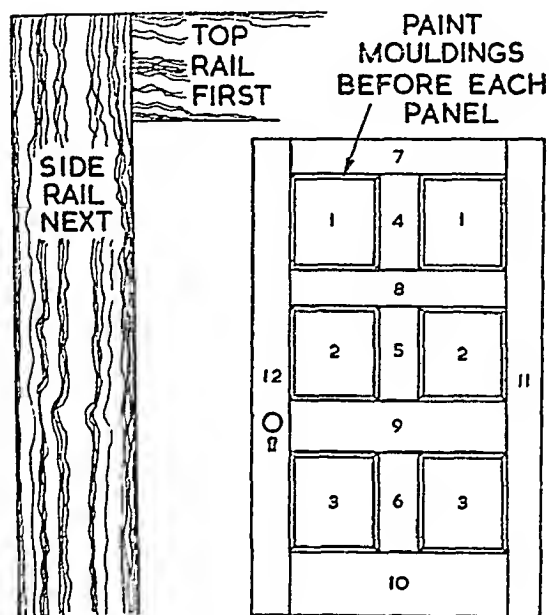


Fig. 105. Door painting sequence

Painting Doors: If the door is a flush one, the painting should be commenced at the top of the door and worked down to the lower edge. The door is coated before the architrave and door-frame. If the door is a panelled one the sequence of painting should be carried out as shown in *Fig. 105*, in which the parts are numbered according to the order in which they should be painted. The illustration shows that the panel mouldings are first to be coated with paint. A 1-in. brush should be sufficient for this part of the job and care should be taken not to lay thicknesses of paint too heavily on surrounding surfaces as, with some kinds of paint, this extra thickness may dry or set off before the rest of the job is done, with the result that the brush will drag in the semi-hard paint. After painting

the edge moulding of the top left-hand panel, the panel itself should be coated, starting at the top of the panel and working down. The laying off should always be done from the short ends of the panel, lifting the brush at the middle. Continue with the top right panel, follow with the lower left panel, then the bottom right panel before painting the rest of the door. The remaining surfaces are painted as follows: Commence with the uppermost inside stile between the top panels, continue with the lower middle stile between the two bottom panels. Carry on with the top cross rail, then continue with the middle rail across the door and the lower rails before painting the two upright stiles at the edges. The edge of the door should next be painted and this is the part of the work where care should be taken to avoid the formation of a fat edge as previously described. After the door has been completed, the architrave and framework should then be coated. If the door opens inwards the cleaning up of spots and splashes should include wiping the meeting edges of the hinge side of the door with a turpsy rag to remove any paint that has seeped through the edge of the door. Other unpainted surfaces of the door should also be inspected and any smears wiped off with a rag. The door should then be wedged open so that it cannot slam against the wet paint on the inside edges of the stops.

Cleaning Paint-brushes: Paint-brushes should be cleaned immediately after the job has been finished. If it is necessary to leave the work overnight to complete the job, paint-brushes may be kept soft by placing the brushes in a small jar, partly filled with sufficient water to cover the bristles. Before using brushes so stored—and this method should only be used for short periods of storage—the brush should be well shaken to remove water and then rubbed out on a piece of scrap-wood. If the brushes are to be left for several days before re-using them for the same job, they may be kept soft in a jar with the bristles covered with turps substitute instead of water.

There are two methods of storing brushes after use. In one the brush is cleaned of old paint and is then suspended in a jar as illustrated in *Fig. 106* with a short length of wire inserted through a hole drilled just above the ferrule, the ends of the wire resting on the rim of the jar so that the bristles are suspended clear of the bottom of the jar. The jar is then partly filled with turps substitute, using sufficient to cover the bristles. Further protection may be afforded by wrapping Cellophane over the brush and the jar to keep out dust. The Cellophane is held in place with an elastic band. The second method of storing brushes is more thorough; in the second method the brushes are thoroughly cleaned, washed, wrapped and stored flat on a shelf in a dry place.

To clean a paint-brush, press the bristles flat on folded newspaper, and scrape them from the ferrule downwards with the edge of a putty knife, to remove as much of the surplus paint as possible. Wipe the brush with folded newspaper and swish it round in a jar containing turps substitute. Remove the brush from the jar and wipe off as much turps as possible on the rim of the jar, then with

folded newspaper. After this, wash the bristles of the brush in warm soapy water, wipe dry with a rag and place in sunshine or near a stove until the bristles have thoroughly dried out. Clean the metal band and lightly oil it. Finish by wrapping the brush in greaseproof paper, taking care to keep the bristles straight and flat. The greaseproof cover is secured by means of an elastic band slipped over the handle of the brush. Brushes cleaned in this way may be used again after a period of several months.

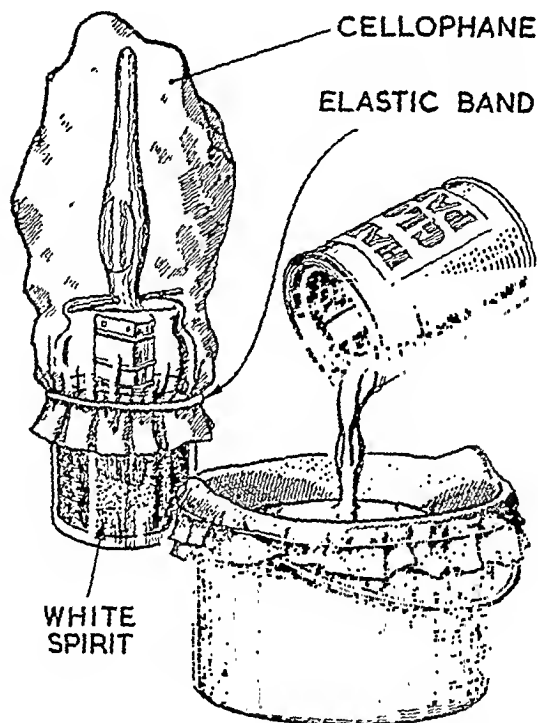


Fig. 106. Storing brushes and pouring paint

All other tools used in painting, putty knives, scrapers, etc., should be washed and scrubbed bright with soft wire wool, then wiped over with an oily rag. Paint-kettles should be cleaned out as previously described, and partly used tins of paint should always be firmly closed before placing them in store. The best way to seal a can is to place it on the floor, put the lid on hand tight then stand on the tin.

Handymen are sometimes advised to turn paint-cans upside-down when storing them to avoid the formation of a skin over the surface of the paint. However, this is not really necessary and a skin should not form if the can is tightly sealed by standing on the lid. Skin formation can be prevented by dropping a spot or two

of thinners on the top of paint before closing the lid. When re-using a partly full container of paint the surface should always be prodded with the point of a putty knife before stirring the paint. If a skin has formed this may be removed by gently slicing round the edge of the skin with a penknife and removing the loosened skin between two pieces of wood. Should, however, this be forgotten or the paint become dirty or gritty by failing to keep the lid on, during sweeping or dusting, the paint will have to be strained. This is done as illustrated in *Fig. 106*. A piece of lint-free fabric of fairly fine mesh should be stretched over the top of a kettle and firmly tied round with string. The dirty paint is then thoroughly stirred and a few drops of thinners should be added before stirring. The old paint is then poured through the filter into the jar.

Paint-rollers: These very useful modern aids to home decorating are not generally used in painting wood surfaces, except perhaps in the case of flush doors. The use of paint-rollers is described fully in the following division of this section which deals with distempering.

Special Paints and Finishes: Some surface materials inside the house require the use of special paints for redecorating, and these special paints are obtainable locally from hardware stores and builders' merchants.

A special quality paint is made for painting radiators and hot-water pipes; this is usually available in a range of metallic colours and known as radiator paint. Any baths that are to be re-enamelled should be finished with a special bath-quality enamel. Cold-water pipes are best painted with aluminium paint. Metal parts of fireplaces should be painted with heatproof enamel and if it is necessary to paint tiles in a bathroom or a tiled fireplace surround, a special tile-paint for this purpose is obtainable from local suppliers. All woodwork and metal surfaces may be coated with the types of paint described previously in this section. Some surfaces require a special preparation; these are encountered mostly in exterior work and include such materials as galvanized iron, zinc and asbestos. Treatment of these materials is described in the next section on Exterior Decorating. A metallic aluminium paint is the best material for undercoating metal surfaces of a general nature such as steel windows. Modern steel windows are made of rustproof metal. Older types of steel windows may be subject to rusting. There are available anti-rust compounds—manufactured under different trade names—which when applied to rusted metal, perform the dual purpose of destroying the existing rust and providing a rustproof base for following coats of paint. The use of absorbent paints for steamy rooms has already been described, and apart from these special paints, and in addition to the common types of paint previously described in this section, the only other materials that concern the home handyman are stains and varnishes. Varnish is not often used for interior decorating, it is mostly used for exterior work and the types and applications of varnishes are described in the following section on Exterior Decorating. Interior woodwork of modern houses is not often stained, except in the case of floors. Wood staining is dealt with in the

section on Cabinet Making. There is a method of painting wood and colouring it to resemble stained timber. This is known as graining, which is also dealt with in the next section on Exterior Decorating.

Staining Floors: Floor stains are available in a good range of timber colours. This simply means that the colour of the stain is described as being light oak, dark oak, mahogany, etc., and it does not mean that the stain so described is only used for painting those kinds of wood—it is not worth while for the handyman to mix his own floor stain. The general use of stains described as varnish stains should be avoided for floors as they have a tendency to chip and flake after hard wear, and are difficult to remove. Proprietary brands of stains may be divided into three main kinds, water stains, oil stains and spirit stains. The latter, which are most suitable for handyman use, may also be described as wood dyes.

Before staining a floor it will be necessary to prepare the surface. The floor should be swept clean. During the application of the stain, frequent use of a dusting-brush should be made. Any tacks or lino-sprigs in the floor should be extracted and any protruding nails should be punched in just below the surface of the floor-boards. Cracks between floorboards and nail-holes should be filled in, as previously described, and if the boards are old it will be found advisable to scrub them before applying the stain. If this is done the floor should be left to thoroughly dry out before staining. The stain or wood dye is applied with a paint-brush—a 2-in.-wide brush should be suitable for most purposes. The stain should always be applied the longest way of the boards and if the complete floor surface is being stained it will be found advisable to complete the length of two or three boards at a time rather than working across all the boards. This will avoid dark overlaps caused by the rapid drying of the stain. The stain should be well rubbed into the woodwork and it is not necessary to flood the boards with an overcharged brush. Evenness of colour may be obtained by wiping the stained surface with a piece of rag immediately after each brushful of stain has been applied. The direction of the wiping rag should always be in the longest way of the boards. The work should be commenced at a point farthest from the door so that it is not necessary to walk over a freshly stained floor to get out of the room. Once completed, the stain should be left to dry before any further treatment. Newly stained floors are best finished with a wax polish before continuing with usual cleaning with furniture polish or cream. In the case of floors that are subjected to a great deal of wear, such as hallways and passages, the stained boards may be protected with an overcoating of shellac. The shellac, which dries very quickly, is brushed on the floor in the usual way. The work should be given at *least* two coats. Between the application of coats the previous coat of shellac should be cleaned down with soft wire wool. The final coat of shellac should also be scrubbed with wire wool and the floor then finished with wax polish. Floors so treated require very little after cleaning to keep them fresh and shining.

Parquet floors are stained in the same way as described above for colouring

floor-boards and in this case the work should be divided into easy manageable sections—each section finishing with the edges of a group of the wood blocks to avoid any dark overlaps. Parquet floors should be well sanded and brushed before the stain is applied. Sanding by hand is a laborious process and the handyman will find it much easier to use a small power tool for sanding this type of floor. Power tools for this work are described in the section dealing with basic tools for the handyman. These power tools may also be used with polishing mops for after treatment. Although it is not worth the special purchase of a power tool for one job, the versatile home handyman will find the small power tools based on electric drills invaluable for many jobs. It is possible in some towns to hire power drills locally from tool shops.

Painting Floors: In addition to being decorated with stain, floors may be painted and special floor-quality paints are obtainable for this purpose. These are available from local hardware stores and builders' merchants, in a good range of colours. Preparation of floors for painting is the same as for staining. The paints are applied in the usual way with a brush. In addition to floor paints, floors may also be decorated with linoleum paint. This is sometimes described as liquid lino, and reliable proprietary brands are available from local suppliers. Lino paint, or liquid lino, is applied in the same way as other paints and it is advisable to apply two coats, the first one of which may be thinned up to 50 per cent of the bulk with turpentine substitute. The finish of these paints resembles linoleum and they are specially suitable for borders round the edge of carpeted floors. These liquid-lino paints may also be successfully applied over worn linoleum which they will revive to give it a greatly increased life.

Colouring Solid Floors: Solid floors of stone or concrete may be coloured with tile polish and the usual colour for this job is red. Solid floors may also be coloured with liquid-lino paint which may be obtained in a variety of colours. There are also obtainable proprietary brands of floor dressings which are combined stains and polishes. These are applied in the usual way with a brush, after the floor has been swept, scrubbed and allowed to dry. The floor dressing sinks into the concrete or stone and one application will last for several years.

DISTEMPERING

Sequence of Work: The sequence of work of interior decorating depends on the extent of the work and the kinds of work to be done. The three main decorative finishes are classified as painting, distemperring and paperhanging. Painting, of course, can be done entirely separate of the other two processes but it is usual, when painting, to decorate walls and ceilings with either paper or distemper. Where the room is to be distemppered and painted the sequence of application is roughly the same in that the upper parts of the room should be treated before finishing the lower parts. With a combined distemper/painting job the first thing

to tackle is the ceiling which should be cleaned off before the walls are prepared. This is followed by preparation of the woodwork for painting and the next cycle of action is carried out in a slightly different sequence. The ceilings should again be treated first before painting, the final job being application of distemper to the walls. If paperhanging is also to be done the paper is hung after the ceiling has been dealt with and following the painting of the woodwork.

Types of Distemper: There are many different kinds of distemper with different trade names and these are variously described as colour washes, water paints, etc.

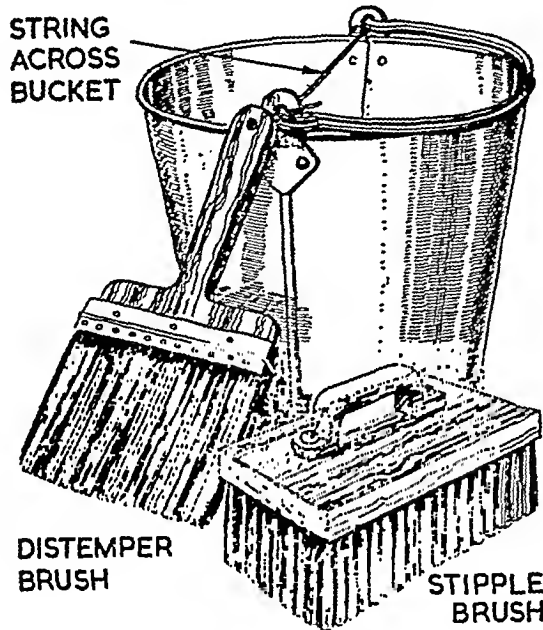


Fig. 107. Distempering equipment

Distemper is composed of a pigment which is bound with a medium which may be linseed oil, glue, varnish or water. Most distempers are supplied ready prepared for use with the pigments mixed in the medium, but before use they require thinning with additives which may be water or petrifying fluid. Distemper is also obtainable in dry-powder form, but this type of material is not often used in interior decorating, although it may be used for some exterior work. Prepared-for-use distempers are described as being 'washable', which simply means that they may be cleaned by washing them with water after application. The term 'washable' does not signify that distempers so described are completely waterproof and if washing is done too vigorously some of the distemper will become loosened and wipe off from the surface. The decorating area covered may vary slightly

between different brands of distemper, but for estimating purposes it may be taken that the covering capacity of a 7-lb. tin of distemper is approximately 50 sq. yd. This coverage refers to distempers that are properly thinned by the addition of water or a petrifying liquid—petrifying fluid is used instead of water where a particularly hard finish is required, such as for bathrooms, kitchens and passageways. Most types of distemper carry thinning instructions on the containers. It is bad practice to over-thin distemper by adding too much water or petrifying liquid. If this is done density will be reduced and it may be necessary to apply an extra coat to effect complete coverage. In most cases two coats of distemper should be sufficient but if the old surface is very dark in colour and it is necessary to change this to a very light colour, more than two coats may be required.

Emulsion Paints: These are modern synthetic materials which are obtainable in a very wide range of shades of colour. They are excellent alternatives to distemper (but see page 201); they are applied to the same surfaces as those on which distemper is used and the same tools and methods of application are general to both types of material. Distempers or emulsion paints may be applied with a brush or roller. Emulsion paints are particularly suitable for use with rollers. As always with tools, the paint-roller or brush for applying emulsion paints should be of good quality to obtain the best results. If the brush method of application is chosen a reasonable size distemper brush of the type illustrated in *Fig. 107* is one measuring 7 in. across the broadest part. An extra tool required for use with a large distemper brush, or a paint-roller, is a small brush, and this is used for edges and for neat cutting-in where it is necessary. Distemper brushes should be soaked in water before they are used and it is best to do this job by leaving the brush to soak overnight. Paint-rollers do not require any preparation before use.

Preparation: The first part of the work consists of preparing the old surfaces and this may vary according to the previous decoration. Neither distemper nor emulsion paint will take properly over old gloss paint or enamel, on walls and ceilings, and with these types of under surfaces it will be necessary, in addition to cleaning down, to remove as much of the gloss as possible with a wire brush or with coarse wire wool. If a ceiling is being treated, as much of the old distemper as possible should be washed off before applying the new coats. The surface under treatment should roughly be divided into sections of a size that can easily be handled at one time. The surface area should then be coated with water, preferably applied with an old distemper brush, and the flat of the brush should be used to scrub the old surface and loosen the previous decoration. The area is then cleaned with a sponge, washing the sponge out frequently to remove as much of the old distemper as possible. The surface should then be rinsed and sponge dried. During the work of cleaning down, the water used for the job should be changed frequently. The methods of cleaning down described here apply to ceilings or wall surfaces.

If the old distemper is of the washable variety, much of it may be removed

by washing down with sugar-soap. Sugar-soap is obtainable in cartons and it is mixed and used according to container instructions. Sugar-soap is applied with an old distemper brush or a sponge, scrubbing the surface vigorously, and followed by a good rinsing before drying with a sponge.

The inexperienced handyman will find the work of washing and cleaning surfaces, particularly ceilings, a very messy business, but there is quite a lot that can be done to avoid making too much mess. The floor of the room should be covered with old sacks or newspapers and the worker should wear a boiler-suit or old clothes. A lot of splashing, particularly from dirty water running down the arms, can be avoided by making a sponge bracelet. This is simply done by cutting a decorator's cellulose sponge in two parts lengthways. The pieces are then bound round the wrists with a piece of string and when the bracelet becomes too wet it is squeezed out into the bucket.

Particular attention should be paid to corners when cleaning down to remove every trace of the old material; this is particularly necessary when washing down ceilings that have been previously treated with a colour wash, most generally referred to as whitewash. Any thickly encrusted mouldings or corners should be scraped gently with the point of a putty knife. The methods of cleaning described above are applicable to walls that have been distempered. If the surfaces being redecorated have been hung with wallpaper it will be necessary to remove the old wallpaper before distemping or coating the surfaces with emulsion paint. Quite a few handymen apply distemper and emulsion paints over old wallpaper, but this is not really a good way of doing the job. The main trouble with this haphazard method is that the new decorative material, in most cases, will soak through the wallpaper and loosen the old paste; after a short while, usually a few weeks after completing the job, the paper may loosen and peel away from walls and ceilings. The only way of ensuring a first-class finish is to remove old wallpaper.

Wallpaper is removed from walls and ceilings by wetting it to soften the paste and scraping it with a broad stripping knife. To do the job properly it is necessary to *thoroughly* soak the paper with water. The water may be applied with an old distemper brush, a paint-roller, or a sponge. The best plan of campaign is to coat all the surfaces, then work over them again with water to ensure that the paper is thoroughly wetted. The stripping knife should not be brought into use until the paper is soft enough to slide easily from the wall and a great deal of hard work can be avoided by the thoroughness of the soaking treatment. The stripping knife should be held with the end of the blade flat on the wall surface, keeping the handle as low as possible, and it is used to slide the paper from the wall rather than scraping. Care should be taken when doing this part of the job to avoid damaging the plaster with the corners of the stripping knife. Every scrap of the old paper should be stripped from walls and ceilings, the surface should then be washed over and, finally, lightly rubbed down with grade middle-two glass-

paper to remove any crumbs of old wallpaper still adhering to the surfaces. If there are any cracks or holes to be repaired, the light rubbing with glass-paper is best done after carrying out the repairs. The method of repairing cracks and holes in walls has been previously described in the section on Interior House Repairs (see page 79). Cracks should be raked out with the point of a putty knife to undercut the edges, thus forming a key for the new filling to grip. Large areas of repair are best done in two goes as previously described. Repairs to plaster surfaces should be done with the patent powder-filler previously described and this type of filler may also be used for filling woodwork.

After carrying out any necessary repairs, the wall surfaces should be lightly sanded down as mentioned above, before the next part of the job is done. This method of preparation is also applicable to preparing for paperhanging, in that old surfaces are washed down, the paper scraped off and any damaged plaster is repaired before the next part of the job is done. Plaster surfaces that are to be distempered or covered with wallpaper should be sized. Plaster surfaces that are to be coated with emulsion paints should *not* be sized. The best type of size to use is a cellulose-based size which is obtainable in granule form in packages or cartons. Only a small amount of this granule size is required to cover quite a large area and a 2-oz. packet is sufficient for a room of average size. Directions for mixing size are given on containers. The stated amount of granules are mixed with cold water. The size is applied with a distemper brush or with a paint-roller, and a small clean paint-brush is used for cutting in at edges and corners. Any spots of size splashed on woodwork or floors should be wiped up as the job progresses. As an alternative to cellulose size, decorators' glue size may be used. This is also obtainable in carton form and directions for mixing are given on the containers. Glue size may be used if the surfaces are to be distempered, but if the new covering is to be wallpaper it will be found advisable to use cellulose size, the granules of which may also be mixed to make paste for hanging wallpaper.

Distempering Ceilings: The ideal arrangement before commencing the work of preparing for distempering is to clear the room of furniture. If this cannot be done the furniture should be stacked in the centre of the room and the pile arranged so that easy access may be gained to every part of the ceiling. The stack of furniture should be covered with an old sheet or with several thicknesses of newspaper pinned together. Incidentally, before tackling any interior decorating work it is a good plan to have the chimney in the room swept. It is not necessary to take up linoleum before distempering but, of course, any carpets or rugs should be rolled up and stored outside the room. The best way to redecorate a ceiling with distemper or emulsion paint is to commence at the end opposite the main source of light and work towards the light. The ceiling should be divided into easily manageable areas and this is especially necessary when distempering ceilings to avoid 'shuts'. A shut is a dark patch of concentrated colour which is caused by overlapping edges of drying patches of distemper and shuts may be avoided

by always keeping a wet edge to the work. This simply means that the handyman should work across the ceiling, dealing with small areas at a time and returning to the side of commencing after each narrow section is completed. The work of distempering a ceiling should be done without interruption. In the case of emulsion paint, however, the job may be left partly finished until the next day and no shuts will be visible on overlapping parts of the work. Another point about working methodically in easy manageable sections is that some ceilings are 'hot' or 'fierce', which means that the lime content of the plaster is such that these ceilings greedily absorb the new distemper and, however quickly the job is done, it may be found difficult to avoid the formation of shuts or streaky brush-marks. It should only be necessary to apply one coat of distemper to a ceiling, unless there is a very great difference in the colour of the new distemper and the old surface. In the case of hot or fierce ceilings, or where drastic changes of colour are being made, the handyman should apply two coats of distemper instead of one. This is also necessary if large patches of the ceiling have been repaired with new plaster. The first coat of distemper may be thinner than the second one. To overcome the properties of hot and fierce ceilings the first thin coat of distemper may be mixed with size. This mixture of distemper and size is known professionally as 'Claircolle'. The distemper or emulsion paint may be applied to a ceiling with a brush or roller. When using the brush it is advisable not to lay off in any fixed direction and the distemper should be applied with criss-cross strokes of the brush in varying directions. With the use of a roller for applying distemper or emulsion paint, the final strokes of the roller should run in the longest direction of the surface. The amateur decorator will find it difficult to cut in neatly at edges and corners and it is advisable to use a small paint-brush with either distemper or emulsion paint for neatening edges. The manufacturers of paint-rollers suggest that edges and corners are best left until the main part of the job has been completed; in actual practice the handyman will find it best either to touch-in edges and corners with a paint-brush before the main surface is dealt with, or during the work. The choice of application—roller or brush for distemper or emulsion paint—rests with the individual worker. Some handymen prefer the use of a brush to a roller and vice versa. There is, however, one factor of difference between these two tools which should be considered. A roller, if properly used, very rarely drops splashes of paint or distemper and there is little cleaning up to be done. A large paint-brush or distemper brush does tend to spray splashes and spots which may necessitate more cleaning up than after a roller job. However, in the case of using a distemper brush, the splashing may be considerably cut down by tying a piece of string across the hand-brackets of the bucket as illustrated in *Fig. 107*. After this is done the brush should be dipped into the distemper and drawn across the string to remove any surplus before using the brush on the ceiling. Splashes may also be cut down by wearing a sponge bracelet of the type previously described. The good handyman should make a point of cleaning up

all splashes and spots immediately after the ceiling has been completed; this may be done with an old rag dampened with water. If spots of distemper or emulsion paint are left to harden they will be found extremely difficult to remove. If the ceiling has a frieze—which is the part of the wall between the picture rail and the ceiling—this should be done after the ceiling has been finished. The work of distempering or painting the ceiling may be done from a single pair of steps. Alternatively a simple scaffold may be rigged up, using two pairs of steps with a stout plank resting on the treads of the steps. If a second pair of steps is not available one end of the plank may be supported on a table. The work of distempering ceiling or walls is best done with all windows and doors closed; the windows should be opened after the job has been completed to help the work of drying out.

Distempering Walls: Walls are coated with distemper or emulsion paint in very much the same way as ceilings, described above. The work of applying the distemper or emulsion paint should be commenced at the top of the wall, working down to the bottom. When using distemper it is advisable to divide each wall into easily manageable sections so that there is a wet edge on each section when the next section is commenced. If the wall is higher than it is long it will be found advisable to work in narrow strips across the wall, commencing at the top and finishing at the skirting-board. If, however, the wall is longer than it is high, it will be found best to work downwards in narrow strips from one corner to another. When distemper is applied to walls which include woodwork that has been newly painted, it may be found difficult to coat any smears of paint at the edges of skirting-boards and windows and door-frames. What happens is that the distemper will not easily lay on the oily surface of the paint and it runs together into small bubbles. This condition is known as 'sissing', which may be overcome by coating the edges in the usual way with distemper and then rubbing the distemper in over the paint with the finger-tips. After this, the brush should again be drawn over the surface. Any spots on painted woodwork and on floors should be cleaned off immediately after each separate wall surface is completed. As in the case of ceilings that dry too rapidly, fierce wall surfaces may be gentled by a preliminary coat of Claircolle, as described above. With ceilings, one coat of distemper should be sufficient, especially if this is preceded by a coat of Claircolle. However, when distempering walls it is advisable to apply two coats instead of the usual one. When using emulsion paint two coats are always necessary. The wall or ceiling surfaces should not be sized or coated with Claircolle before applying emulsion paint. The first coat of emulsion paint is thinned with water usually to the extent of 50 per cent and thinning instructions for first or primary coats of emulsion paint are printed in container instructions.

Although the application of a coat of Claircolle will slow the drying of coats of distemper, the complete beginner to the job of distempering may still find it difficult to work with sufficient speed to avoid brush drag at drying out edges of sections of the work. If this is so, brush marks in the finished job may be

avoided by using a stippling brush. This tool is illustrated in *Fig. 107*. The stippling brush is dabbed over the surface as each section of the wall is distempered and has the effect of tapping out ridges formed by drying brush-marks. A stippling brush may also be used to obtain a two-tone dappled colour finish. This finish is gained by applying one coat of distemper in a light colour, following with a second coat in a darker contrasting colour and dabbing the surface, as each section is completed, with a stippling brush. The stipple pattern may be varied by using the end of a roll of newspaper instead of the stippling brush, or a sponge, or piece of cloth, may be used to obtain a variety of pattern effects.

In addition to the usual flat distemper effects a raised or relief pattern may be obtained by use of special materials. A rough description of stippled paints and distempers is to liken them to the usual kinds of distemper thickened with a plaster powder. These special relief finishing materials are obtainable in two different forms, either in white as a powder—that may be mixed with water or distemper—or in the form of ready-mixed coloured relief coatings that require no further colouring. The white relief coatings may be finished by colouring them with distemper, emulsion paint, or oil paints after application. These decorative materials lend themselves to a variety of differently textured finishes. They are applied to the wall, treating small sections at a time, and each section is textured before the next section is commenced. The texturing can be done in many ways. A very pleasing finish is obtained with the use of a comb made by cutting saw-teeth edges in a thin piece of metal and it can be done with a sponge, by twisting, turning and wiping, and with paint-brushes of different sizes or with a scrubbing-brush. Before commencing the job, it is advisable to try the material out on a small surface, such as a piece of hardboard, and practising texture pattern formations. The textured finishes may be applied all over a wall surface, or they may be restricted to certain areas to make panels or borders, or to form a separation strip half-way up the walls of rooms—the top parts of which are decorated a different colour than the lower parts.

If rooms are being given a two-colour finish with emulsion paint, or distemper applied smoothly or textured, it will be necessary to clearly mark the divisions of colours and patterns and this marking may easily and neatly be done with a snap-line. A snap-line is simply a piece of thin stout cord which is rubbed all over with chalk—ordinary school quality will do—the chalk should be in a contrasting colour to that of the wall, blue chalk is suitable for use on white surfaces. The position of the line is marked at the ends of the walls, each end of the line is then held against the measure marks—it needs two people to do this job properly—the middle of the line is then plucked from the wall surface and smartly released to snap a clean guiding line. It is of course necessary to hold the line as tight as possible while it is being plucked and released.

Painting Walls: In addition to coating walls with emulsion paint, they may also be decorated with oil-paint of the kind used for painting woodwork. The surface

should be prepared in the usual way by cleaning and washing down, removing as much of the distemper as possible, and cleaning off old wallpaper. Cracks and holes should be repaired as explained above. Wall and ceiling surfaces are then sized with glue size and it is usually necessary to apply two undercoats of flat paint before applying the finishing coat. The oil-paint may be applied with a brush or a roller and the paint should be laid off in the case of a ceiling in strokes towards the end at the main source of light. In the case of walls, the finishing brush-strokes or roller directions should be up and down the walls—not across them.

Cleaning Tools and Equipment: The tool used for distempering or coating walls with emulsion paint or oil-paint should be cleaned immediately the job is finished; the cleaning of paint-brushes has been previously described. Distemper brushes should be washed out in running water. To remove every particle of colour they should then be shaken dry, the metal band wiped over with an oily rag and the brush hung up from a loop of string threaded through a hole drilled in the handle. Instructions for cleaning paint-rollers may vary between different makes but usually these are washed and dried. Rollers used for the application of oil-paint should be cleaned by removing as much of the paint as possible by rotating the roller on a bed of newspaper, then washing the covering with turps substitute followed by washing with hot soapy water before drying. All metal tools should be cleaned by burnishing them with soft wire wool and wiping them with an oily cloth. The paint-tray used with the paint-roller should be wiped clean with a turpsy rag. The cleaning of a paint-tray may be simplified by lining the tray with greaseproof paper before filling it with paint. Tools should be cleaned as soon as possible after the job has been done. This is especially necessary with tools used for applying emulsion paints, which are quick-drying.

PAPERHANGING

Of the wide variety of jobs that come within the scope of the home handyman paperhanging is one of the most interesting and one that gives gratifying results for the time taken. Paperhanging is not a difficult job if it is done sensibly and in correct sequence as explained below. For hanging paper correctly some special tools are required which have not previously been mentioned in this book.

Tools: As with any other branch of home handyman work the tools purchased for paper-hanging should be of good quality. Cheap tools will result in bad work. All the tools described below are illustrated in *Fig. 108*. The chief requirement is a pair of scissors, and although it is possible to do the job with household scissors, the handyman is advised to invest in a proper pair of long-bladed paper-shears of the type illustrated in *Fig. 108*. Next in importance is a good smoothing-brush, and one about 10 in. long with a good thickness of bristles should be found suitable for handyman use. A brush may be required for applying paste to the back of the wallpaper—a distemper brush may be used for this purpose—or the

job can be done with a paint-roller, depending on the preference of the handyman. Another tool required is a seam-roller of the type illustrated in *Fig. 108*. These are usually of boxwood and are intended for rolling the seams of paper that is not

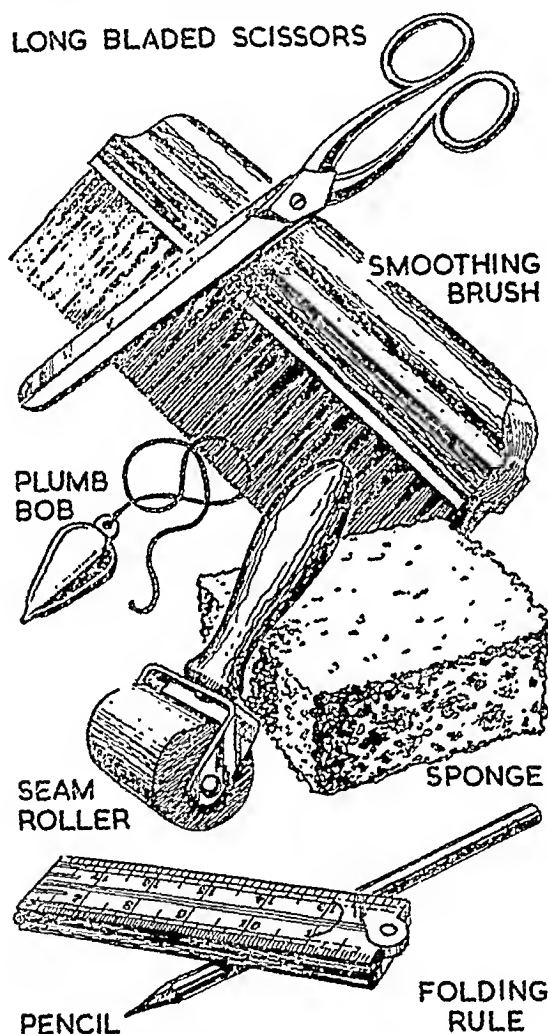


Fig. 108. Paperhanging equipment

embossed with a raised pattern. If the paper has a prominently embossed pattern it will be advisable to use a rubber-covered roller. Alternatively, a small paint-roller may be used for this purpose. For use when hanging patterned paper, a plumb bob and line will be required. This is simply a length of thin stout cord attached

to a pear-shaped metal weight. Additional aids to good paperhanging are: a 2-ft. or 3-ft. folding rule, pencil (not indelible), a decorator's sponge, a supply of old rags, a bucket in which to mix the paste and a wooden spoon for mixing.

Equipment: For paperhanging walls the handyman will require a pair of household steps; where these are not available the uppermost parts of most walls can be reached from a chair. For papering ceilings it will be necessary to rig up a scaffold consisting of two pairs of steps with a stout plank. If only one pair of steps is available one end of the plank may be supported by a table. Also required will be a suitable table on which to lay the paper while it is being pasted. The best arrangement, of course, is a 6-ft. trestle table, but if this is not available any convenient-sized table may be used, with the top covered by a loose sheet of hardboard which can project over the edge of the table by about 12 in. each end. If much paperhanging is to be done, the handyman will find it convenient to make a folding table-top, and a description of this aid to paperhanging is included in the section on Carpentry (page 163).

Materials: The main material is, of course, wallpaper and there are many different kinds available, ranging from very thin papers used for lining ceilings to thick embossed papers. The range of patterns and colours is almost unlimited and fresh patterns are published by manufacturers every year, usually in the Spring. Pattern books may be seen at local shops which supply wallpaper and may be borrowed from these shops to take home and browse over. The choice of paper is largely a matter for the individual. However, if the handyman is a complete beginner to paperhanging he is well advised to choose a plain, small-patterned paper for the first job or so rather than a wallpaper with a bold complicated pattern that requires a great deal of care in matching at the edges. The quality of the paper is also a matter for individual consideration, but in this respect the beginner will be well advised to choose one that is not too thin or too thick. As a general guide, ignoring special surfaced papers and ceiling papers, the beginner paperhanger should select a paper in the middle price range which will be found neither too thin nor too thick for easy application. There is one more thing about paper which should be considered when selecting, and that is the fastness of the colour. Very few wallpapers have completely fast colours except varnished papers and the cautious paperhanger should make the simple test of rubbing a wet fingertip on the paper in the pattern book before deciding to purchase. Now, if the pattern colours smudge *easily* when rubbed with a wet finger the beginner should avoid them and choose others that are harder to smudge.

In addition to wallpaper there is available a good range of borders in a wide variety of colours, designs and widths. Choice of these is also a matter for individual consideration, but like the main paper, the border should not be too thin or too thick and the colours should be reasonably fast when rubbed with a wet finger. In addition to borders there are also obtainable corner motifs and other decorative paper motifs.

The best paste for amateur use is a cellulose-based paste. The beginner may use one of the patent powder pastes mixed with cold water or he may prefer to use the old-fashioned flour paste, but if any of the latter is smeared on the face of the paper it will almost certainly stain it and the pattern will smudge. Cellulose paste does not stain the face of even the most delicate papers and it is easy to mix and apply. The paste, when suitably thinned according to container instructions, may also be used to size the walls and ceilings before the paper is hung. Sizing may also be done with a glue size, but use of glue size is not recommended if cellulose paste is used on the paper.

Preparation of Surfaces: The preparation of walls and ceilings for paperhanging is the same as that described previously. Distempered walls and ceilings should be washed and any loose or scaly distemper removed. Old wallpaper should be cleaned off, cracks and holes filled as previously described, and the walls lightly rubbed down with glass-paper before sizing with thinned cellulose paste or glue size. It is a common practice with inexperienced decorators to hang new paper over old paper. This should be considered bad practice and the handyman who wants to become expert at paperhanging should *always* strip old wallpaper before hanging new. If this is not done the paste on the old wallpaper will soak through the new paper to soften the paste holding that paper to the wall, and the extra weight may cause both old and new papers to peel away at top corners. In addition to improving the appearance of the finished job it will be found much easier when repapering the room in the future to strip the walls. If possible it is best to clear the room completely of furniture before hanging paper and whenever it can be arranged the table on which the paper is pasted should be placed in the room where the work is being done. If it is not possible to clear the room all the small pieces of furniture should be removed and the large pieces stacked in the middle of the room in such a way as to provide easy access to all surfaces being decorated. The stack of furniture should be covered with sheets or several layers of newspaper pinned together. It is not necessary to take up linoleum but carpets and rugs should be removed, and if the chimney needs sweeping this is a good time to have it done, before the new paper is hung.

Estimating: Wallpapers are manufactured in the standard width of 21 in. This width does not include the selvages which are trimmed off before the paper is hung. The average length of a roll of wallpaper will vary between 11 yd. and 13 yd. For the purpose of estimating, the length of a roll should be regarded as 11 yd. When purchasing wallpaper it is advisable to buy the full amount required at one time. If the paper for a room is purchased in different batches as the work progresses, it is quite possible there may be a slight difference in colour between the different batches. Obviously the number of rolls required will vary according to the size of the room. To accurately estimate requirements, all walls of the room should be measured along their length and marked at intervals of 21 in. Any incomplete sections of the wall, such as over doorways, fireplaces and over and

under windows, should be estimated separately by measuring these surfaces and arriving at a total in square feet. With the walls marked off in 21-in. intervals the height of the wall should be measured from the under edge of the picture rail or ceiling, or the edge of the frieze, down to the top of the skirting. It should then be a simple matter to estimate the number of complete strips and divide the total length by the length of one roll of wallpaper (11 yd.), adding the allowance for incomplete parts of walls, to arrive at the number of rolls required. To simplify this part of the job a table of wallpaper measurements for rooms of different sizes is given overleaf. When estimating the length of each strip 6 in. extra should be added to the height of the walls. This allows a margin of 3 in. at each end of the strip for trimming. It is essential to allow this extra, because wallpaper cannot be cut to the exact size before hanging. This method of estimating applies to plain paper or papers with small patterns that do not require matching at the edges. In the case of patterned paper which does require edge-matching an extra allowance must be made for matching the pattern and this can only be determined by the actual paper used. In the case of some plain and small-patterned papers it is advisable to hang every strip in reversed order. When this is necessary the manufacturers include a printed slip with each roll of paper. It is a simple matter to estimate borders which are sold by the yard. If a border is to be hung at the top of the paper and/or at the bottom edge where the paper meets the skirting-board, it will not be necessary to make such a generous allowance for trimming the ends of strips, as the border will cover edges of strips that are cut short.

TABLE FOR ESTIMATING QUANTITY OF WALLPAPER REQUIRED

Measure around room including doors and windows then
from skirting to frieze, picture rail, or ceiling

No. of feet round room	Height from skirting to frieze, picture rail, or ceiling				
	7 ½ ft.	8 ft.	8 ½ ft.	9 ft.	9 ½ ft.
	(rolls)	(rolls)	(rolls)	(rolls)	(rolls)
28	4	4	4	4	4
32	4	4	5	5	5
36	5	5	5	5	6
40	5	5	6	6	6
44	6	6	6	7	7
48	6	6	7	7	7
52	7	7	7	8	8
56	7	8	8	8	9
60	8	8	8	9	9

Preparation of Materials: Wallpaper is prepared by trimming the selvages. These are simply included when the wallpaper is printed to protect the edges of the paper in transit and in store. The selvages may be trimmed by hand but this practice is not recommended; it is a very lengthy and tedious job to trim wallpaper by hand, and it is necessary to work very carefully so that the trimmed edges are neatly and accurately cut. This is a job best done by machine and shops that supply wallpapers will trim rolls by machine for a very small extra charge. Some paperhangers like to work with papers that have one edge only trimmed, others prefer working with papers that have both edges trimmed. The handyman who wishes to become expert at paperhanging is advised right from the very start to have both edges trimmed. The difference is illustrated in *Fig. 109*, which shows that the seam with one edge trimmed is overlapped by the next strip of paper. With both edges trimmed there is no overlapping and the joining edges butt together at the seam. It is not advisable to cut all the rolls of wallpaper into strips before starting the job and it is only necessary to prepare one roll at a time. Measure the paper carefully, remembering to allow suitable extra amounts for matching or edge trimming, and cut the strips across with scissors. It is advisable to check the accuracy of measurement by hanging a dry length against the wall before cutting the complete roll. The pieces cut from the roll are referred to as strips or pieces. The pieces should be placed on the pasting table with all face sides downwards and with the back edges of the strips underlapping as illustrated in *Fig. 109*. The front edges of the topmost strip should be level with the front edge of the pasting table. It is not very often that the home handyman will be able to use a table of sufficient length to accommodate the complete length of a strip of paper. It is best to have all the surplus paper hanging over one end of the table, preferably the left edge (see *Fig. 109*).

If a plain or small-patterned paper that does not require matching at the edges is being hung, the use of a plumb-line is not essential. If, however, the paper is patterned, the edge position of the first strip to be hung should be marked with a plumb-line. If this is not done the pattern may be out of square and run into or away from the ends at the tops or lower edges of the walls. To use a plumb-line first check the width of the paper by measuring it; although the standard width of wallpaper is 21 in. it will often be found that there is some variation in the trimmed width. Whatever the width, this should be marked at the top of the wall where the first piece is to be hung and it is best to start from a corner. Deduct $\frac{1}{4}$ in. for turning the corner and make the necessary measure mark. The plumb-line should be rubbed with chalk; one end of the line is then held against the mark at the top of the wall with the point of the weight just above the skirting-board. When the weight stops swinging, make a pencil-mark exactly opposite the weight on the wall. Lower the string so that the ends can be held to the measure marks—it will require two people to do this job properly—pluck the centre of the string from the wall and release it smartly. To appreciate the necessity of using a plumb-

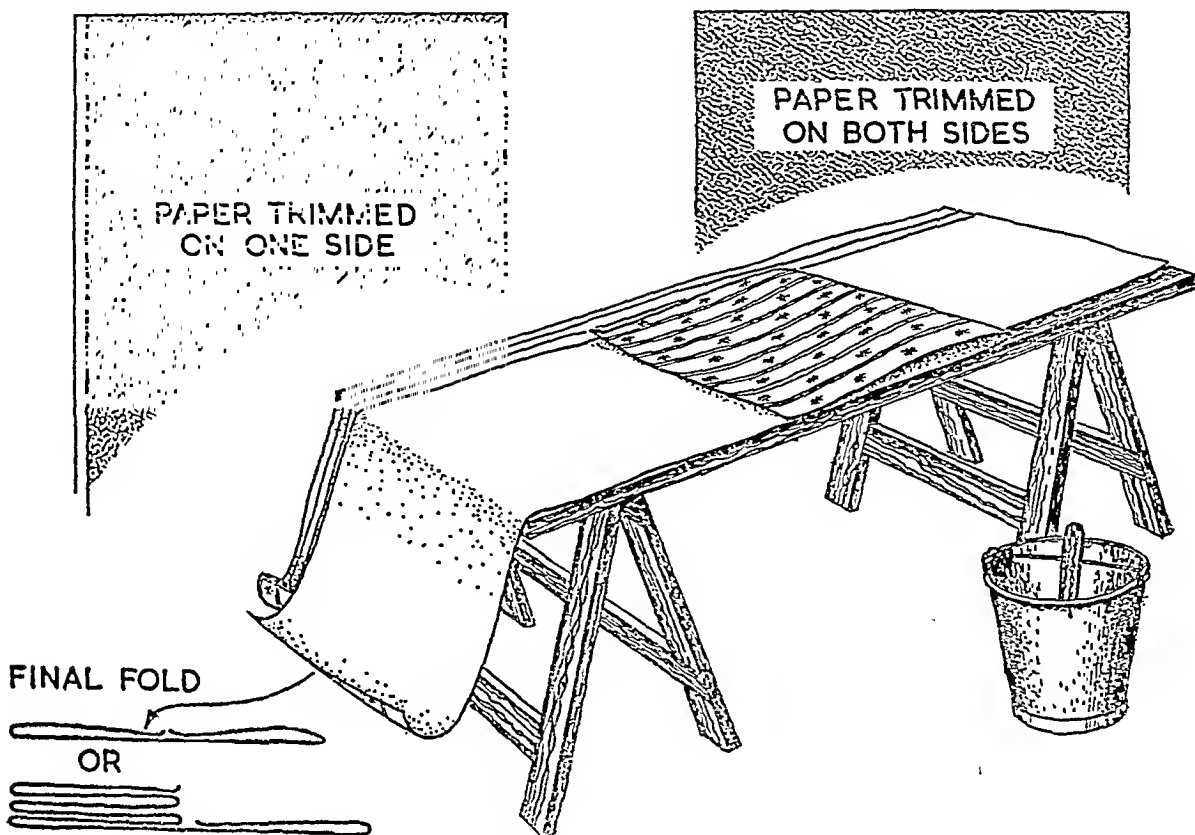


Fig. 109. Wallpaper prepared for pasting

line to ensure a perfectly vertical mark it should be explained that although the utmost care is taken when building houses it sometimes happens that the corners of walls are not completely square and any slight difference, even as little as $\frac{1}{16}$ in., could distort the horizontal level of patterned papers. The plumb-line and bob should also be used with patterned papers, after hanging every three or four pieces, to check the vertical uprightness of the edges. The position of commencing to paper a room may vary. In most cases it is advisable to start from the corner of a wall at right angles to the main source of light and work away from the window. In the case of patterned papers, however, it is usual to hang the first strip over the main feature of the room—usually the fireplace—so that the pattern will be evenly balanced. After marking the wall where necessary the job of paper-hanging may be commenced.

Pasting the Paper: The paste should be mixed according to container instructions and it may be applied with a brush or roller to the back of the paper. It will be

found best to work with one end of the papering table near a light so that any missed patches of paper may be seen when pasting. The amount of paste to apply to the back of the paper will vary according to the thickness of the paper and the correct application is largely a matter of experience. As a general guide it may be taken that thin papers require less paste than thick papers. If thin papers are over-pasted they may tear or drape when being hung. Cellulose-based paste can be applied to medium-weight papers quite liberally. The paste should be brushed or rolled on the centre of the paper first, working methodically from the end of the table to the unsupported ends of the paper. After pasting the middle of the strip, work the brush or roller outwards towards the edges. It is bad practice to use brush or roller from the edge to the middle of the paper. If this is done a certain amount of paste is bound to be scraped off on the edges and will creep under the sides of the strip. Every care should be taken when pasting and handling paper not to coat the paste on the face side. In the case of cellulose-based pastes, these will not mark the face of the paper, but it is a good habit right from the start to avoid marking the front of the paper if possible. With one end of the strip pasted the paper should be folded and moved along the table so that the remaining part of the strip can be coated with paste. There is a definite sequence of movements for doing this simple job. Move *all* the strips back together for 2 in. or 3 in. away from the edge of the table, still keeping the back edges of the strips underlapping. With this done, wipe the edge of the table with a decorator's sponge to remove any traces of paste that have been brushed on the edge of the table. With the front edge cleaned draw the top strip back to the edge of the table. Take the pasted end and fold it as shown in *Fig. 109* so that the pasted sides of the paper are together. The beginner may find it necessary to make several attempts before doing this part of the job properly. The edges of the folded end of the strip should coincide and the folded paper lightly smoothed with the hand. The top strip should then be moved along the table and the unpasted end coated with paste. This end of the paper should also be folded over after wiping the edge of the table as was the first end (*Fig. 109*). This is done for two reasons:

- (a) To ensure that the thickness of paste is spread evenly over the surface of the paper.
- (b) To make the pasted strip easy to handle.

If the piece is extra long and it cannot be pasted in two movements of the paper, the paper should be concertina-ed as illustrated in *Fig. 109*. Thin papers should be hung immediately they are pasted. Papers of medium thickness may be left for a few minutes before hanging them to allow the paste to soak into the paper. Thick papers should be left to soak for several minutes and soaking and pasting instructions are usually given with these extra thick papers when they are purchased. The sequence of pasting and folding the paper is the same for all pieces.

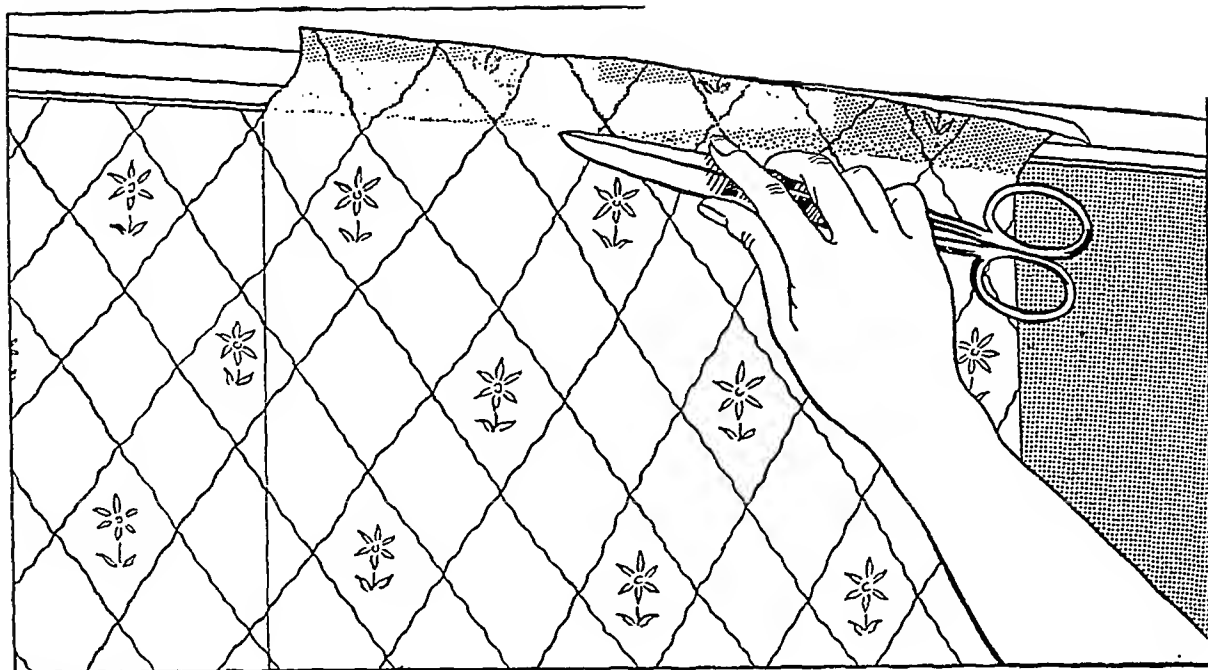


Fig. 110. Marking a cutting line along the top of a freshly hung strip of wallpaper

throughout the job, always remembering to wipe the front edges of the table and keeping the back edges overlapping.

Hanging Paper: While the paper is soaking the hanging tools and steps can be placed in position for hanging the first roll. The tools required for this part of the job are the smoothing brush, paper-scissors and a clean sponge or dry cloth. The pasted and folded strip of paper is taken from the table and draped over the left arm as you would carry an overcoat. With this done, mount the steps and unfold the top half of the paper. This may be found rather difficult at first, but the handyman will soon get the hang of the job after handling one or two strips. There is no need to rush this part of the work and there is plenty of time to hang each strip slowly and carefully. The bottom half of the paper should not be unfolded. After unfolding the top half, hold the edges with both hands, one at each side at a distance of about 3 in. from the end of the strip. Hold the paper between the thumb and forefinger of each hand (*Fig. 110*) with the remaining three fingers resting lightly on the wall. This holding position enables the paper to be raised or lowered, moved sideways, or tilted easily. If the paper is being hung to a chalked line the appropriate edge of the paper should be placed at the top against the edge of the chalk line and the position of the other hand raised or lowered so that the lower end of the paper is exactly level with the line. If there is no chalk line, as in

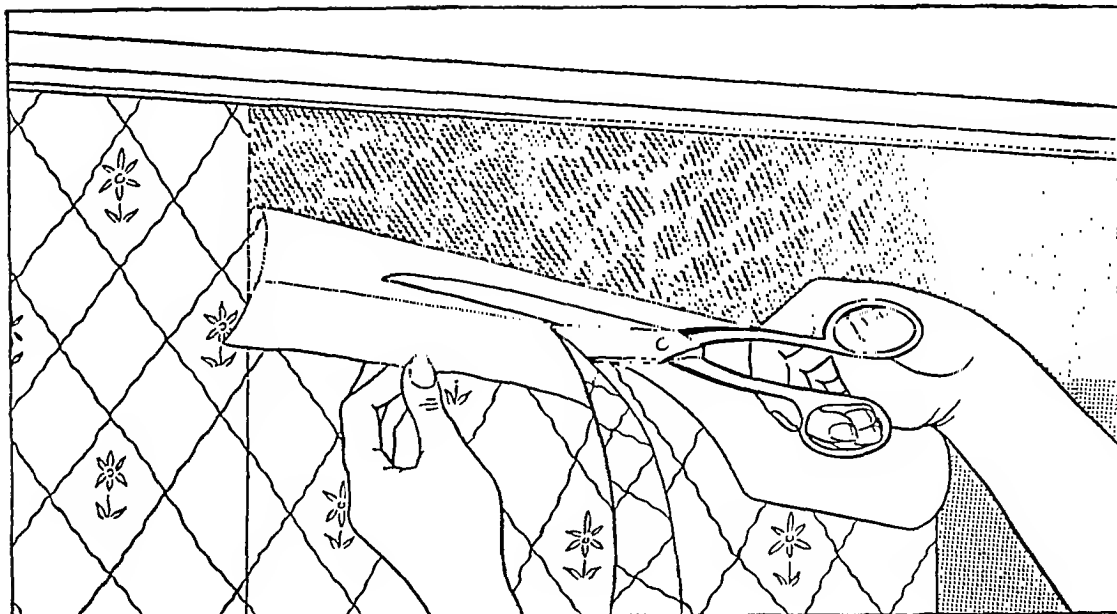


Fig. 111. Trimming the top of a strip of wallpaper. The scissors are used to cut along the guide-line marked on the front of the paper with the point of the scissors

the case of unmatching papers, the tilting adjustment should be made so that the inside edge fits into the corner with about a $\frac{1}{4}$ -in. allowance for turning the corner. Once the vertical position of the paper is adjusted to the worker's satisfaction, the top edge should be pressed to the wall gently with the thumbs, without tilting the paper. Hold the paper lightly against the wall, take the smoothing-brush, sweep it once across the top of the paper, then down the middle of the strip. Following brush-strokes are then made each side, from the middle outwards to the edges of the paper. If any (*Fig. 111*) wrinkles or creases form, peel back the nearest corner until the crease is reached, then re-brush the paper from the crease to the loose corner.

The completely inexperienced paperhanger should take plenty of time to do this part of the job properly and there is no need to rush the work at all. With the top of the paper secured to the wall, the worker should dismount the steps, continuing brushing the paper downwards through the middle first and outwards to the edges until the fold is reached. Gently unfold the paper and continue brushing until the bottom of the strip is reached. When hanging the paper, of course, the trimming overlap should be allowed for by overlapping both the top and bottom ends by 3 in. With the complete strip pasted to the wall and all wrinkles smoothed out, remount the steps to trim the top edge. To do this use

the tip of the bristles of the smoothing-brush to tap the paper well into the angle formed by the wall and the lower edge of the picture rail, or the angle of the wall and the ceiling. The paper should fit snugly into the angle and a cutting line is then marked by running the back of the tip of the closed scissors in the angle, as illustrated in *Fig. 110*. With the trimming line marked, peel the paper away from the wall, and with a lightly dampened sponge or dry cloth, wipe the surface paste from the picture rail or ceiling. With the paper peeled back the cutting line marked with the point of the scissors on the face of the paper will be clearly seen (see *Fig. 111*). The scissors are used to trim neatly along this line. The top of the piece is then brushed back to the wall, where it should fit neatly and snugly into the angle. When dismounting the steps to trim the bottom edge of the paper, use the tips of the bristles to tap the edges of the paper at both sides firmly to the wall. The bottom edge of the paper is trimmed in exactly the same way as the top, by brushing the paper into the angle, marking a line with the point of the scissors, peeling the paper back from the wall, wiping paste from the top of the skirting-board before trimming along the edge line and re-brushing the paper to the wall. The scissors should be used gently to mark the cutting line—if they are used too vigorously the paper may tear. The seam-roller is not used at this stage.

Following strips of paper are pasted and hung in exactly the same way. Care should be taken when hanging pieces, after the first piece, to ensure that the joins are hung neatly, and this is done by a careful adjustment of the hang when holding the top of the paper. The inexperienced handyman may have to make several attempts before getting the feel of the job. No attempt should be made to hurry the work by the inexperienced person and should, in the extreme, a piece of paper be badly hung and found very difficult to adjust, it should be removed from the wall, re-pasted before re-hanging, or put aside for filling in short lengths, and a new piece hung. Wallpaper is not expensive and it would be foolish to spoil the job for the sake of one strip cut from a roll. Some practice in hanging may be gained by tackling a small job first, such as a larder or cupboard.

The short pieces of paper trimmed from the lengths hung should be folded with the paste side inwards, or they may be hung to dry over the top of the door or banister rail, if it is thought that they may be required for later filling in of small surfaces. However, if estimating has been done properly, it should not be necessary to waste time with these scrap pieces, but they should not be left on the floor because, if they are left for any length of time, they will stick to the linoleum or floor-boards, also, if trodden on, there is the danger of an accident. After hanging each strip of paper, the scissors should be wiped clean with a dry cloth. This is necessary, because paste quickly attacks metal and if the scissors are left unclean for any length of time, paste may corrode the blades. When using the smoothing-brush care should be taken to keep it clean and free from paste, that is why surplus paste on skirting-boards or ceiling is wiped off before the paper is brushed to the wall.

The seam-roller is used after hanging three or four strips. When the first seam is rolled the following seams are then rolled after each new strip is hung. The seam-roller should not be pressed too heavily on the edges of the paper or the edges of the roller will mark the new paper with lines. To avoid marking the face of the paper, the hands should be washed after completing every three or four strips.

Continue hanging pieces until the first corner is reached. Professional decorators do not turn wallpaper into corners or round protruding corners and the handyman should not attempt to do this. The correct method of papering a corner is to cut the strip of paper along its length. To do this properly, measure the unpapered wall surface at both top and bottom, transfer the measurements to the next strip of paper, plus an extra $\frac{1}{4}$ in. for turning. Join up the measure marks with a straight-edge or by folding the paper, and cut neatly along the line. The part strip is then hung in the usual way, using the tip of the bristles to tap the paper neatly into the angle. The remaining part of the trimmed strip is then hung next. With unmatching paper, odd wall lengths over fire-places, doors and windows may be filled in after the full strips have been hung. Short sections of walls between the edge of the last strip hung and the edge of a door should be treated in the same way as a corner, by measuring the strip and trimming the next piece of paper to fit. An allowance of about $\frac{1}{2}$ in. should be made for trimming neatly at the upright edge. The paper should be tapped with the tip of the bristles into the angle, marked gently with the scissors in the usual way, peeled back from the wall, surplus paste wiped from the framework and the paper cut neatly along the trimming line before brushing it back on to the wall. When hanging paper round a fire-place, the top of the paper should be secured to the wall in the usual way; the strip is then brushed down until the first horizontal angle is reached; the paper is brushed snugly into the angle, the appropriate length marked lightly with a pencil, peeled back from the wall and trimmed and the brushing continued to the next horizontal angle. If it is at all necessary to join short lengths in difficult positions it will be found best to tear the paper across the width rather than cutting it. A torn edge is much less noticeable than a cut edge.

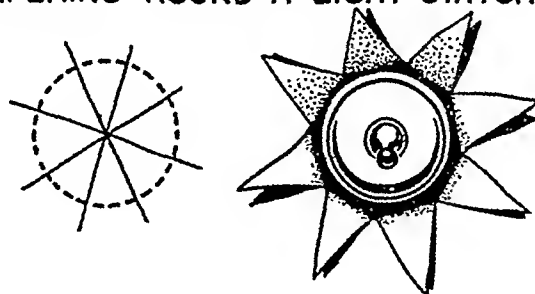
Some special care is needed to paper neatly round electric-light switches. If the switch is of the flush type the current should be switched off at the main, the switch-plate removed, by releasing the screwed ring in the middle of the plate, the paper hung in the usual way, tearing a small hole for the knob of the switch and replacing the plate after the strip has been hung. In the case of dome-shaped switches which protrude from walls the paper should be hung in the usual way, making a small hole for the switch knob, and the complete length should be brushed to the wall, and ends trimmed, before returning to the job of neatening round the switch. This is done by gently tearing the paper to make a series of star-shaped tears as illustrated in *Fig. 112*. The paper is then gently tapped into the base of the switch with the tips of the bristles of the smoothing-brush, the

INTERIOR DECORATING

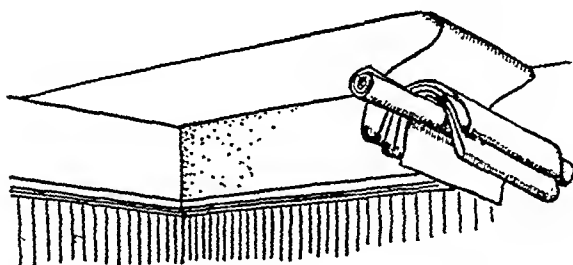
angle marked lightly with a pencil, the paper pulled gently from the wall, and the trimming line snicked through with the point of the scissors before re-brushing the paper to the wall. When a paper is torn in this way, or to deal with an awkward strip, care should be taken to ensure that the white edge of the tear is undermost and is not visible on the face side of the paper.

Lincrusta papers and heavy papers require special treatment before hanging them. In most cases these stiff, thickly embossed papers are soaked with water

PAPERING ROUND A LIGHT SWITCH



FOLDING A BORDER



CEILING PAPER HELD ON ROLL

Fig. 112.

before applying the paste and the paste is applied thickly. Manufacturers of these special papers usually include pasting instructions with each roll. When hanging patterned papers it is necessary to take extreme care that each strip is hung squarely on the wall and that the matching pattern at the edges is neatly joined up. This may be facilitated by the use of a plumb-line previously described and the paper should be held at the top between the forefingers and thumbs, as mentioned previously, so that adjustments in hanging can be made before the pasted side of the paper is pressed on to the wall.

Borders: Patterned wallpaper borders are sold by the yard and usually they are supplied in the form of a sheet on which the pattern is repeated and it will be necessary to cut the sheet into strips before pasting and hanging it. As much as possible of the border should be hung at one time. The border is pasted as explained above and is then folded concertina fashion as illustrated in *Fig. 112*. It should then be found an easy matter to place one end of the border in position and release the fold slowly whilst moving along the wall. The border paper should be stretched very slightly as it is patted into place with the palm of the hand. With the complete strip hung, go over the work again, tapping the border with the ends of the bristles of a smoothing-brush. If it is necessary to join a border along its length, it is best to tear the new edge and not cut it and this will make the join practically invisible.

Panelling: Many rooms in modern dwelling-houses lend themselves well to decorating with panels of wallpaper. Panelling schemes should be worked out and rough drawings made before the amount of paper required is estimated. There are many variations of treatment that may be applied to this form of decorating. Generally the main paper of the panel has a pattern and the paper separating the surrounding panels has a smaller pattern or is plain. The edges of the panels are covered with narrow bordering. In the case of panelled walls, it is best to apply the main paper first—that is the paper of the panel. The walls should be marked out with a snap-line or with a straight-edge and a pencil. After completing the panels, the separation and edge strips are then pasted and hung and it will be found economical to make the width of the edge strips, etc., a multiple of the standard paper width, which is 21 in. The width of the strips may be 7 in. to cut paper without waste. The bordering is attached as explained above with the ends of the bordering at the corners of the panels neatly mitred.

Ceilings may also be panelled with wallpapers of two different colours and usually one panel is sufficient for a ceiling, unless there are any beams or girders running across the ceiling.

Papering a Ceiling: Covering a ceiling with wallpaper is done in the same way as described above for paperhanging walls. The difference being that when papering a wall the handyman makes use of the force of gravity which, of course, he cannot do when papering a ceiling. This is a job best done by two people—one person to hold the folds of paper, the other to position the paper and brush it on the ceiling. The strips of paper should be attached across the shortest width of the ceiling. The paper, after pasting, should be folded, making many small folds as explained above. The same tools are used—a smoothing-brush, paper-shears, sponge and seam-roller. It will be necessary to rig up a scaffold of steps and a plank or tables so that the complete run of the strip can be dealt with without dismounting the scaffold. If a ceiling is to be papered this should be done before hanging paper on the walls. It is possible for one person to paper a ceiling, but this will be found extremely difficult to do by the completely inexperienced

INTERIOR DECORATING

paperhanger. After some experience has been gained in practice, the job can be done as a solo effort by holding the folded end of the length of paper with one hand and positioning and brushing the free end of the strip in place on the ceiling with the other hand. It will be found easier to hold the folded section of the paper by using a rolled strip under the folds as shown in *Fig. 112*.

Wallpaper that is hung in the rooms of a house where there are small children or pets may be protected by applying a coat of special sealing preparation made for this purpose. The protective coatings, which are transparent, are manufactured under different trade names. They are easy to apply with a wide, clean brush or a roller. They are colourless and will not darken or stain the most delicate papers. Should the surface of the wall become finger-marked, splashed with water or marked with grease, the stains can easily be cleaned off without damaging the paper. Use of these protective coatings considerably prolongs the life of wallpaper.

EXTERIOR DECORATING

Dual purpose of decorating exteriors—sequence—tools and equipment—sealing bituminous surfaces—treatment of gutters—dealing with blistered surfaces—use of a blowlamp—preparation and application of paints. Distemping: Restricted use of paint-rollers—preparation of concrete surfaces—emulsion paints. Painting Doors: Special treatment for front doors—cleaning down and filling—knotting and priming—sequence of work—finishing. Graining: Methods of graining—use of scumble—tools and appliances—preparation—ground colours—graining devices—combs and rollers—brush graining—patterning the scumble—value of practice. Varnishing: Types of varnish—application of varnishes—brushes—finishing. Treatment of Special Exterior Surfaces: Garden woodwork—cement surfaces—galvanized iron—asbestos.

THE chief reason for coating exterior surfaces is to protect them against sun, rain and wind, and all the materials used for outside work should be of very good quality so that they perform their function properly. It is false economy to use poor quality materials for exterior work, especially when the cost of repairing or replacing damaged timbers and metalwork, which will deteriorate if not adequately protected, is taken into account. The manufacture of modern decorative materials is such that maximum protection can be afforded to surfaces, at the same time creating an attractive scheme of decoration. All the paints used for exterior work should be of *outside* quality. The job of decorating exteriors should be done in sensible sequence by coating top surfaces before treating lower surfaces. The handyman-decorator will find that exterior decorating has an advantage over decorating interiors in that the work can be divided into smaller sections, each one of which may be completed separately.

The tools and equipment used for exterior decorating are the same as those used for interior work with the addition of one extra piece of equipment—a ladder. For most modern dwelling-houses a 24-ft. extending ladder will be found sufficient; the advantage of using an extending ladder is that the two sections may be taken apart and used separately. In some localities it is possible to hire ladders from local builders' merchants, but if the handyman is considering the complete maintenance of the exterior, and intends doing this work regularly, he will find it advisable to invest in the purchase of a ladder.

The sequence of exterior decorating is very much the same as the order in which interior work is done. Any alterations and necessary repairs should be carried out before preparing the outside surfaces for redecoration, and the work is commenced at the top of the house and continued downwards as progress is made. The first surfaces for exterior decorating are those of gutters, eaves boards and fascia boards; this is followed by decorating the top sections of down-pipes and windows of the upper floor and completing the job with the decorating surfaces of lower floors. This does not mean that each section, into which the

work is broken down, should be completed by the application of all coats of paint before the next section is commenced. Each coat should be applied to all the surfaces, in top-to-toe sequence, before applying the next coat in the same order of work.

If any wall surfaces are to be treated with distemper, or emulsion paint, this is best done after the woodwork and metal surfaces have been primed and undercoated and before finishing coats are applied. It may be found, especially in the case of modern dwelling-houses, that the outside surfaces of down-pipes have been coated with a bituminous paint. Ordinary paints cannot be easily applied over bituminized surfaces; if this is done the bitumen will burn through and stain the new paint. Any metalwork parts that have been coated with a bituminous-based paint should first be sealed by the application of a coat of aluminium priming paint, or knotting-quality shellac. The insides of gutters should be cleaned out with a stiff brush to remove all dust, dried sediment, leaves and birds' nests. Any rusted parts inside gutters should be vigorously attacked with a wire brush until the metal is bright and gleaming. Inside surfaces of gutters should then be finished with two coats of lead paint. It is not necessary to apply finishing paint to the inside of gutters.

Although the work of exterior decorating may be broken down into small sections of work, any surfaces bared in preparation should not be left without recoating them. If this is done any rain or damp weather between treatment of the sections will attack the bared surfaces. Paint should never be applied on damp surfaces; although paint may appear to go on quite well over surfaces that are damp, the life of the new coating will be considerably reduced, and shortly after painting the new paintwork will flake and crumble. The blistering of paint on outside surfaces is due to two main causes. One is excess moisture in the wood under the paint, which turns into steam and expands to form blisters after periods of strong sunshine. Another reason for blistering is due to wood with a high resin content from which resin exudes following long sunny periods. The treatment of timber surfaces which have a high resin content has been described previously in the section on Interior House Repairs. If outside surfaces are in very bad condition it may be necessary to remove the paint by softening it with a blowlamp and scraping the softened paint from the wood with a stripping knife or shave-hook. It should be appreciated that a blowlamp should not be used for cleaning surfaces unless the old paintwork is badly blistered and scored and is very generally in a poor condition. Butane blowlamps of the type described in the previous section will be found quite easy to use by the handyman for burning off outside surfaces. There are, however, some factors governing the use of these appliances which must be taken into account when using them. It is only necessary to apply the flame of the blowlamp to the woodwork for a very short period to soften the paint, and only a small section of the job should be burnt and stripped at one go. Over-enthusiastic use of a blowlamp may char the wood, especially at the edges

of window-frames and mouldings. Also, if a blowlamp is held too long near window glass, the glass will crack, especially in cold weather. To appreciate the extent of this danger, the inexperienced handyman wishing to use a blowlamp will find it advisable to hold the flame against a piece of scrap glass; this will give some idea how long the flame can be played on the glass, or near it, before cracking it. When burning off windows it is not necessary to soften the paint on the putties and, as far as possible, the flame of the blowlamp should be kept well away from glass.

Any woodwork that has been bared by stripping it, and any new wood that has been used for repairing outside surfaces, should be knotted and primed before being undercoated. If outside surfaces are not in too bad a condition the use of a blowlamp may not be necessary, and the wood should be prepared for repainting by vigorously rubbing down with grade middle-two glass-paper. The glass-paper should be folded to enable it to be worked well into corners, and during all the work of exterior decorating frequent use should be made of the dusting-brush. In all branches of home decorating, each separate coat of paint applied should be allowed to dry thoroughly before the next coat is brushed on. This is especially necessary with outside work and the decorator who wishes to attain a high degree of proficiency should take as much care when applying undercoats—perhaps even more—than finishing coats. No amount of care in applying finishing coats will result in a good job if the work of preparation or applying the undercoats has been skimmed or hurried. As with interior work the brushes used for exterior decorating should be of a sensible size in relation to the surfaces being coated. Any spots of paint that are splashed or dropped on surfaces other than those being decorated, should be immediately wiped off with a turpsy rag, and not left to harden. This is particularly necessary in the case of splashes which drop on small projecting roof surfaces of lower floors, such as those over porches. Any hardened spots of paint on brickwork may be removed by rubbing the spot with a small piece of brick. The coats of paint should be brushed on and laid off in the same way as described for interior decorating.

Distempering: In most cases the distempering or painting of exterior walls is done by applying the decorative materials on roughened surfaces, and the use of a paint-roller for coating outside walls is restricted to very smooth surfaces. The preparation of wall surfaces consists of cleaning the surfaces by brushing them with a hard, stiff brush. If the surface has been previously distempered or painted any loose and flaking patches should be removed by brushing, and it may be necessary to use a wire brush on these parts. A wire brush should also be used if cement or concrete surfaces that are to be decorated have not been previously decorated and are thickly encrusted with dirt. After cleaning with a stiff brush, a soft brush should be used to remove dust or small particles. In most cases, with outside surfaces, the work of preparation may be done with stiff and soft sweeping-brushes. The handyman-decorator is not recommended to use new distemper

EXTERIOR DECORATING

brushes on exterior wall surfaces. These surfaces are very hard on new brushes and will quickly wear them down. The best tool to use for recoating walls is an old distemper brush. The application of distemper, emulsion paints and oil paints to outside surfaces is done in the same way as described in the section

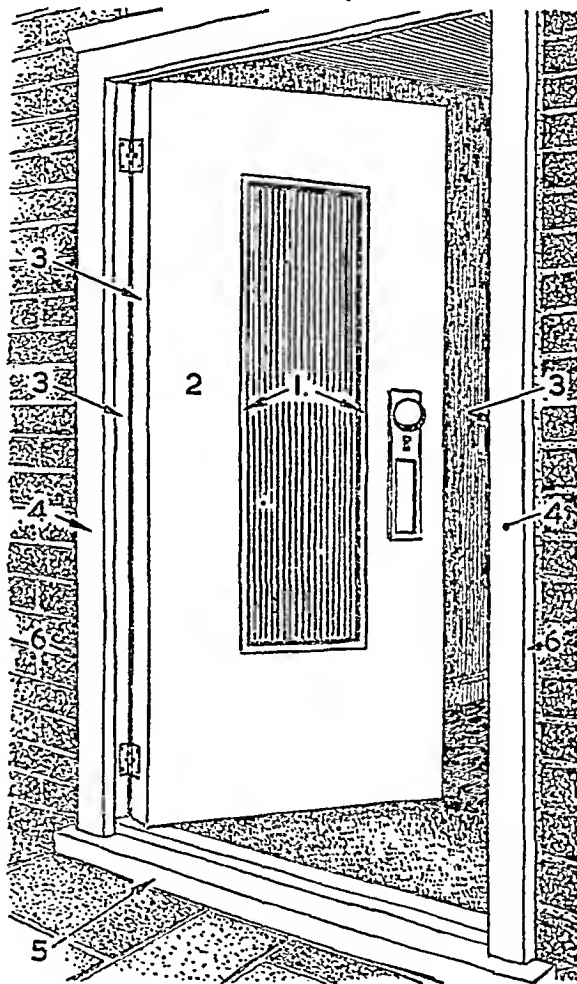


Fig. 113. Painting a front door

on Interior Decorating. Emulsion paints may be used for outside wall surfaces but they are not suitable for use on woodwork or metal.

Painting Doors: The most important part of exterior decorating is the work of finishing doors, especially the front door. Although every part of the outside of a house should be done thoroughly and carefully a front door should be given extra special treatment; not only is the front door the first part of the house

that welcomes visitors, but it is usually subject to much more wear than any other part of the house. The first part of the job of repainting a front door consists of carrying out any necessary repairs such as renewing weather-boards and tightening slack hinges, etc. The metal fittings attached to the door are best removed completely before starting the work of cleaning down. If the old surface is in fairly reasonable condition and is not badly blistered or cracked, the cleaning down may consist of washing the paintwork with sugar-soap, and rubbing it down with waterproof glass-paper lubricated with water. Any rough patches should be cut down, smoothed with pumice-stone and all the paintwork should be rinsed to remove every trace of sugar-soap, and sanding and pumice dust. Every part of the surface to be repainted should be gone over carefully to finish with a velvety smoothness; frequent use of the duster should be made when cleaning down to prevent any loosened dust, etc., being rubbed into the surface. After preliminary cleaning down the work should be allowed to dry thoroughly before the next treatment. This consists of coating any knots, bared in rubbing down, with shellac knotting. Knotting is best applied with a fitch which should be reserved only for this job. The knotting should be applied evenly to cover the knot and a small area surrounding it. If the knotting is too thick or if it is allowed to run, this may show through the finishing coat. The fitch used for knotting is cleaned by washing it in methylated spirit, then washing with warm soapy water. Any bared patches of the woodwork should be coated with pink priming paint, or aluminium primer, and priming should also be brushed into any cracks and holes before they are filled. If patches of priming are applied to the surface, the edges of each patch should be well brushed out to avoid the formation of thick raised edges which may be visible under the finishing coat of paint. The priming should be allowed to dry and harden before rubbing it down with new, grade middle-two glass-paper. All deep holes and cracks should be filled with fresh putty; this should be well pressed into holes and crevices, smoothed level with the surface then lightly brushed with a dusting-brush. Any shallow holes and grain markings should be filled in with a patent powder-filler of the type used for repairing plastered walls. The filler should be applied with a broad stripping knife and it should be allowed to thoroughly dry before rubbing it down with worn grade middle-two glass-paper. Special attention should be paid to edges, corners and quirks in mouldings to ensure that every part of the surface is thoroughly prepared.

After cleaning down, good use should be made of the dusting-brush to remove every particle of loose material before applying the first undercoat. All outside work should be done in reasonably fine weather conditions—outside paint should not be applied if the weather is damp, or if there is a high wind that may blow dust on to the paint before it has hardened. This weather wisdom applies particularly to front doors. The undercoating used should be of a suitable colour to provide a good base for the finishing coats. The brushes should be clean. When painting front doors, take special care to tuck the bristles of the brush well in the

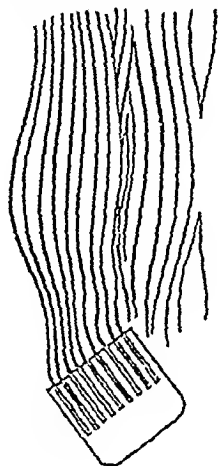
corners of the work, and also in laying off carefully. The sequence of work in painting a front door is illustrated in *Fig. 113*, which also shows which parts of the door and frame should be coated with the outside. Leave the first undercoating to dry and harden, then rub down briskly with a piece of new grade middle-two glass-paper, taking particular care with edges and corners. Check the fillings and renew any that need topping up. Dust the door and framework before applying the second undercoating, which may consist of a mixture of the paint used for the first undercoating and the finishing paint, up to half the volume of finishing paint of hard gloss or enamel. The second undercoating should also be left to harden before rubbing it down, and again the work should be carefully dusted before applying the finishing coat. The finishing paint should be well stirred, applied with a clean brush and extra care should be taken in laying off all the surfaces of the door. The sequence of application of the finishing coat is the same as for the undercoats as illustrated in *Fig. 113*. Usually two undercoats and one finishing coat will be sufficient for outside work, but the surfaces may be given extra protection, especially in the case of a front door, by following the finishing coat with one or two coats of oil varnish. It should, of course, be appreciated that varnish does slightly darken the under colour. More detailed information about varnishes and varnishing is given later in this section. Front doors and other exterior and interior surfaces may be grained.

Graining: Graining is a method of colouring wood with paints to resemble the appearance of natural woods. Graining is done by coating the surfaces with a suitable ground colour which is followed by the application of a special stain preparation known as 'scumble'. The colour of the ground should be suited to the colour of the scumble, which is obtainable in a very good range of shades similar to the colours of natural wood. The correct colour for the ground coat, in relation to the colour of the scumble being used, is printed on scumble containers; also it is given on manufacturers' colour cards. The preparation of surfaces for graining, which is especially suitable for front doors, is the same as for painting. Any repairs to the woodwork should be carried out, the old surface cleaned down with sugar-soap and glass-paper, any bad surfaces burnt off and scraped, bare knots primed, and bare patches and holes and cracks coated with priming. After the priming has dried the surfaces being grained should be rubbed down with new grade middle-two glass-paper. The work is then stopped and filled in the usual way, as described above, using putty for deep holes and cracks and powder-filler for small surface imperfections. The work should be well dusted after the filling has been rubbed down, before the undercoats of ground-colour are applied. The composition of the ground-colour undercoats is the same as those for ordinary painting, and no special undercoats are necessary. In most cases two undercoats should be sufficient; each one should be allowed to dry and harden before rubbing down preparatory to applying the next coat.

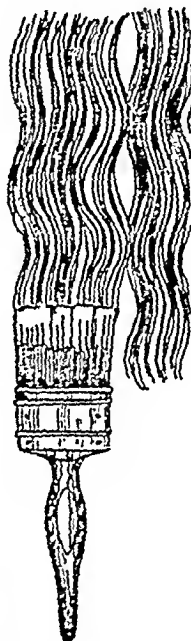
The graining may be done in several ways. Graining may be done with metal

combs with teeth of different widths, as illustrated in *Fig. 114*. Simulating the grains of some woods entails the use of these combs and wiping with a cloth. Graining may also be done with graining rollers which have embossed wood-grain patterns, as illustrated in *Fig. 114*. Graining may also be done by using sheets of very thick paper which are embossed with a wood-grain pattern. All the graining

GRAINING WITH A
METAL COMB



GRAINING WITH
A BRUSH



GRAINING
ROLLER

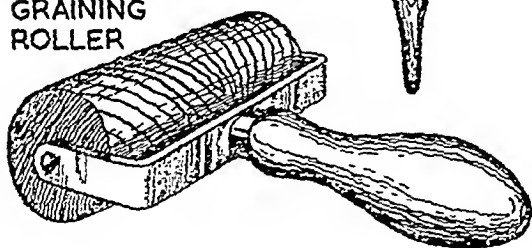


Fig. 114. Graining

tools, etc., are used after the scumble has been applied, and while it is still wet and soft.

The handyman interested in this branch of decorating may experiment and become proficient with any of the graining devices described above. There is, however, another method of graining painted woodwork which the handyman-decorator will find extremely easy to carry out. In this method the freshly applied scumble is given a grained texture with a dusting-brush, or a clean dry paint-

brush of suitable width—say 3 in. or 4 in. Whatever method of brush-graining is decided on, the inexperienced decorator should first test the method on unobtrusive surfaces, or on pieces of waste materials in the workshop. Graining of all kinds can be practised on odd pieces of hardboard. The scumble is applied with a paint-brush and for most jobs a 1-in. brush should be sufficient. The scumble is prepared ready for use and merely requires stirring before brushing it on. The drying action of scumble is such that the inexperienced person should have sufficient time to pattern and mark the soft scumble before it sets off. If, however, the handyman finds that the scumble sets too rapidly the drying action may be slowed down by mixing a *small amount* of linseed oil with the scumble. The drying action may oppositely be speeded up by mixing a *small amount* of turpentine or white spirit with the scumble. Any additives should be well stirred into the scumble before using it. A small amount of the scumble is brushed on to the surface being treated—the method of application is similar to that of painting and the sequence of work is the same in that edges should be coated before areas are filled in, etc. The scumble should not be applied too thickly and it is not necessary to lay it off. With the section of the surface under treatment coated with scumble the graining-brush is brought into use. The first action of the brush is to use it with a tapping movement to stipple the scumble and spread it evenly over the surface. The area should be treated methodically, working from one end to the other in the direction of the brush handle, and the brush should be raised cleanly from the work as each *light* tap is made. With this done the tips of the bristles should be wiped on a dry cloth, and the scumble-coated surface is again gone over with the graining-brush. This time the brush is *drawn* over the surface with the bristles held fairly flat on the work. As the brush is drawn through the scumble it is moved quickly from side to side with very short undulating movements—about $\frac{1}{4}$ in. each way is sufficient, as illustrated in *Fig. 114*. When this is done the bristles drag through the scumble to reveal irregular streaks of the ground colour and the finish is very much like a wood grain. The rest of the work is done in the same way. The graining is always done from corners or edges towards the centre of the section of work under treatment. If a mistake is made the soft scumble should again be worked over to stipple it with the ends of the bristles, before again re-dragging the brush through the stain. A short time spent in practising this very simple action will soon give the handyman-decorator the feel of the process.

The other graining devices are used in much the same way. The ground coat is brushed with a scumble which is stippled with the ends of the bristles by tapping the soft stain. If a comb is used, this is dragged over the surface of the work and the side-to-side movement of the comb should be the same as a graining-brush. A graining roller is merely rolled over the work and graining papers are pressed on to the soft scumble and the back of the paper rubbed over with a cloth. Each tool used for patterning the scumble should be wiped on a piece of cloth before

re-using it for the next section of work. Some very attractive finishes can be made in this way and the methods of graining may be combined to produce some very effective results. For instance, the roller, comb or graining paper may be followed by a very light dragging with the graining brush to imitate some wood grains, particularly oak, and small patches of the scumble can be wiped off with a dry cloth before using the graining-brush. The scumble should be allowed to dry before being finished. Finishing consists of coating the surfaces with varnish to protect the scumble which, although dry, is still too soft to stand up to normal handling for any length of time. The varnish used for coating scumble should be oil varnish, and it is usual to apply two coats of egg-shell varnish which has a dull soft gleam when dry. This is followed by a glossy varnish.

Varnishing: Grained woodwork and painted woodwork which is exposed to very hard wear or to adverse weather conditions may be protected to give it a longer lease of life by coating the work with varnish. There are many different types of varnishes used for various purposes. These types of varnishes may be divided into three main groups which are identified by the medium in which the pigments are held, and the three main groups of varnishes are known as oil varnish, spirit varnish, or water varnish. Of these, oil varnish is most suitable for handyman use. It is the hardest drying of the three groups—most oil varnishes are also termed ‘copal’ varnishes. Oil varnishes are slow-drying and they should not be used in very cold weather or in damp weather; and it is not advisable to use varnish for outside work on a windy day, which may result in the varnish becoming spoilt by dust. Spirit varnishes are faster drying than oil varnishes; they leave a more glossy surface finish but they are not as durable as oil varnishes for outside work. Spirit varnishes are used mostly for finishing articles of furniture. Water varnishes are rarely used by the decorator—their main use for the handyman is for finishing wooden toys. Many of the different types of varnishes are named for their purpose; for instance, there is a ‘front door’ varnish, ‘church seat’ varnish, etc. The handyman-decorator is advised to state the nature of the work when purchasing varnish. The types of varnish should never be mixed in the same job; the elasticity of oil varnishes and spirit varnishes is different and if the varnishes in these two groups are used together, the surface will break up into a series of fine cracks, especially if a coat of oil varnish is followed by a coat of spirit varnish. Varnish is applied in the same way as paint; varnishes are usually applied liberally but not too thickly or runs and tears will develop. Special attention should be paid to corners of panels, etc., to prevent the formation of runs in the finished job by overloading these parts of the work. The brushes used for varnish are slightly different from those used for applying paint. The end bristles of a varnish brush are trimmed to a point as illustrated in *Fig. 102*, which also shows the end shape of paint-brush bristles, so that the difference may be recognized. It is unwise to use a brush previously used for paint for applying varnish. In most cases varnish is best applied with a new brush, but if much of the work is to be done regularly, the

brushes may be stored provided they are not used for other jobs. A varnish brush is best stored, as illustrated in *Fig. 106*, by suspending the brush from a piece of wire inserted through a hole drilled in the handle of the brush, inside a jar, which should be partly filled with varnish to cover the bristles. The jar should then be enclosed to keep it dust-proof by wrapping a piece of Cellophane over the handle of the brush and the jar holding the cover fast with string or with an elastic band, as illustrated in *Fig. 106*. Both inside and outside varnishing should be done in dust-free and dry conditions. If varnish becomes damp before it dries, it will, after a period of time, develop 'bloom'. This appears in the form of white cloudy patches which cannot be removed. The surfaces to be varnished should be well rubbed down and dusted, preferably some time before the work is done, to allow time for the dust to settle. Although varnish should be applied fairly liberally, the handyman-decorator will probably find it best in most cases, to apply two thin coats rather than one heavy one. If, as is so in most cases, two coats of varnish are applied, the first one should be rubbed down and the surface dusted before applying the finishing coat. The first coat may be rubbed down with a waterproof-grade glass-paper, or with pumice powder dusted on a soft cloth and dampened with water. The work should be rinsed down and allowed to dry thoroughly before the finishing coat is applied. Care should be taken when applying the varnish to avoid the formation of fat edges and raised thicknesses of parts surrounding panels and mouldings, etc., due to the application of a double coat of varnish.

Treatment of Special Exterior Surfaces: Unpainted outside garden woodwork should be coated with creosote or with a branded wood preservative to protect it against weather. It is best to apply the preservative with an old brush which once having been used for this purpose, should never again be used for applying paint. Outside creosoted surfaces that are to be resurfaced with paint must first be sealed or the preservative will burn through the new coats of paint. The sealing of these surfaces may be done by applying a coat of shellac knotting or coating the work with aluminium priming paint. New cement surfaces should not be painted with oil paints until they have weathered sufficiently to kill their alkali content, but new cement surfaces may be coated with cement paints specially manufactured for the purpose—these colouring finishes contain a good percentage of cement powder, and they should be applied with a wide brush. Outside cement surfaces and brickwork may be coated with emulsion paint or distemper.

If new galvanized iron is coated with oil paint the new decoration will have a short life, as the galvanized finish of the iron contains chemicals which react to oil paints. The iron should either be allowed to weather, for at least six months, or if it is necessary to coat it as soon as it is fixed in position, the galvanized iron may be artificially weathered by the application of a solution of 2 oz. of chloride to a quart of water. The chloride should be applied liberally to the metal sheeting and left for 48 hours before rinsing it thoroughly. Metalwork must be allowed

to dry before being painted. Weathered, or artificially weathered, galvanized iron may be coated with oil paint but the best type of finishing materials for these and other metal surfaces are metallic paints which have anti-rusting properties.

Asbestos is another exterior surface that requires special treatment before paint will take on it, and asbestos may be prepared by washing the material with white vinegar which should be liberally brushed on with a clean brush.

All the work of outside decorating should be done with the same care that is applied to inside surfaces. It should always be remembered that exterior decorating performs the double function of protecting the surfaces and brightening with gleaming new colours.

LEGAL PROBLEMS AND HOUSE PURCHASE

Chimney Fires: Calling the fire brigade—owners of adjoining land—duties and rights—free flow of air to property—dangerous animals or things. Fences and Walls: Repair of fences—responsibility for straying animals—party walls—ownership of fences—overhanging trees—cutting from own land—entering neighbouring property for purpose of cutting overhanging trees—fruit from such trees—ancient lights—minimum period—building line—building beyond line—garden gates—damage by dogs—drains. Repairing Clauses: Tenant's responsibility—owner's responsibility—condition and upkeep of garden—felling trees—built-in furniture—fixtures—furniture not screwed to walls—furniture screwed to walls—selling fixtures to new tenant—rates—by whom payable—unfurnished houses—nuisances—bye-laws—noise—smoky chimneys—burning refuse—faulty drains—complaints. Gardens: Injuring neighbour's garden—overgrown gardens—streams—animals trespassing—damage to animals—burst pipes in adjoining premises—care of lodger's property—treasure trove.

HOUSE PURCHASE. Consideration—inspection—actual purchase—employing a valuer—mortgages—contracts—repayments—selling a mortgaged house—insurance of house—taking possession.

THE sensible householder may often wish to know what his rights and duties are, according to the law. It should, of course, be appreciated that when considering any matter of legal difficulty a solicitor should be consulted, and the problems briefly explained in this section are not intended as substitutes for legal advice. The points dealt with are those which may affect the householder as a handyman. Legal advice is also necessary when entering into house purchase, and the information given at the end of this section should be simply regarded as a guide to procedure.

Owners of Adjoining Land: There are various ways in which householders on adjoining land have rights and duties towards each other. The knowledge of these can do much towards the enjoyment of both properties. The owner of a house or land cannot claim the right to a free flow of air to his property, nor object to the view being obstructed by other properties. Your neighbour may at any time build or alter his property (subject to the local bye-laws) so as to shut out the flow of air or to obstruct the view, and you will have no grounds for complaint legally. On the other hand, anyone who brings any dangerous animal or thing on to his property is liable for any damage it may do to his neighbour's person, family or property. That is unless he can prove that having taken all possible precautions against damage to others, the damage was committed due to a reason beyond his control.

Fences and Walls: Fences and walls can cause a great deal of trouble between neighbours, unless each understands his own responsibilities in the matter. The ownership of a fence or wall is decided on each case individually in law. There is no law which actually compels a house-owner to fence in his land, or to keep the fences in good repair. In law it has been held that it is the responsibility of each householder to keep his own animals, etc., in, and not to keep his neighbours' pets out. Where houses have party walls, most local bye-laws hold that the wall is cut perpendicularly down the centre, and that each party is responsible for the maintenance of one half. In the case of a fence with posts and buttressed walls, it is considered that ownership of the fence or wall is decided by the positions of the posts and buttresses which are placed on the side of the owner.

Overhanging Trees: If the roots or branches of a tree grow into or overhang a neighbouring garden, the owner of that property has the right to cut them off without giving the owner of the tree notice of his intention; this right only holds so long as he cuts them from his own land. If it is necessary to enter the other's land to cut overhanging trees, he must give reasonable notice to the owner of the trees. Any branches or fruit cut off the tree, no matter from which property, must be returned to the owner of the tree.

Ancient Lights: This is a right claimed by the owner of some houses, to receive a certain amount of light through a window which overlooks other property. The flow of light must have been enjoyed for a minimum period of twenty years, and even then only a reasonable amount of light can be claimed. Obstruction of the view or unsightliness of the obstruction are not considered as grounds of complaint under 'Ancient Lights', neither is a diminished flow of light, so long as a reasonable amount is still received.

Building Line: This is the general line of building in any street or road, and the consent of the local council must be obtained before any building can be erected which extends beyond this line. To build beyond the line is an offence and you can be ordered to demolish any building built without permission. In all matters appertaining to the construction of buildings—even garden sheds—also alterations to existing buildings, the householder is advised to consult his local authority. If work is done without permission, the householder may be compelled to demolish the new work, or to restore the unauthorized alteration to its original state.

Garden Gates: If you have no garden gate, or leave the gate open, and someone else's dog enters and does extensive damage, you cannot claim damages from the owner.

Drains: The cleansing and keeping clear of all drain-pipes, manholes and sewers on your property is your own responsibility.

Repairing Clauses: If you are the tenant of a house, it is usual for the tenant to be responsible for the decorating inside and out of the house, and for the landlord to be responsible for the constructional work. However, every tenancy is subject to the terms of the individual lease. This generally means that the tenant will

have to repaint all external paintwork every three years. Also keep the garden in as good a condition as it was when the agreement was made. The tenant must not fell any trees, or alter the nature of the land on which the house is built, without the landlord's permission.

Built-in Furniture and Fixtures: Articles which are fixed to the structure of the house *may* become the property of the landlord, unless they can be removed without causing damage to the structure of the house. For instance, furniture screwed to a plugged wall can be removed, and the damage to the wall made good, but a fireplace could not be moved. Also it should be borne in mind by the tenant, that he can only remove such fixtures during his tenancy; if he leaves built-in furniture, curtain rails, etc., with a view to selling them to the new tenant, and the new tenant refuses to purchase them, he cannot then remove them.

Chimney Fires: You are not required to pay a fine if you call the fire brigade to a chimney fire. Householders who fire their chimneys so often that it becomes a public nuisance, or who deliberately fire them, may find that the police take action against them. No matter how small a fire, it is always wise to call the fire brigade, both for the sake of safety and to support any claims for insurance the householder may have to make. Fire brigades make no charge for their services.

Nuisances: In every district there are bye-laws to regulate nuisances, such as noise, smoky chimneys, burning of refuse, faulty drains, etc. If such a case arises the householder should make enquiries as to the local bye-laws. If the nuisance is found to be contrary to the bye-laws, any three householders in the immediate neighbourhood may make a joint complaint to the local council, who will then serve a notice on the offender, ordering that the nuisance be abated. If this notice is not obeyed, a heavy fine can be incurred by the offender.

Gardens: The law is quite clear about the way a householder shall use his garden. In law you must not use it in any way which will injure neighbouring gardens, or prevent other people from enjoying their own gardens. No one is obliged to cultivate his ground, but if you allow your garden to become overgrown with weeds, and those weeds seed into your neighbour's garden, he can sue you for the damage to his crops. Again if a stream runs along the bottom of, or even through your garden, you must not throw rubbish, or any other offending matter, into it. The local sanitary inspector can take proceedings against anyone doing so.

Trespassing Animals: A domestic animal such as a cat or a dog is presumed harmless in law and has certain rights of its own. If your dog trespasses in a neighbouring garden and does any damage, the owner of the garden can sue for damages in the County Court, but he must take no action which may harm the animal in any way, or he can be charged with a serious breach of the law. Generally the damage a cat or dog does in a garden, although annoying, is trivial in law, and if you want to take action against the owner of the animal for damages, you must be prepared to give the court very definite and accurate particulars of the damage done, the date and the amount claimed. It is pointless to try and take action

for a trivial amount, or unless you have reliable witnesses that the damage was committed by a particular animal. Because a domestic animal is held to be harmless in law, its owner cannot be held liable for any damage it does contrary to its nature *unless* it can be proved that the owner knew of its viciousness and took no steps to prevent it harming other people.

Burst Pipes in Adjoining Premises: A householder or tenant cannot be held responsible for damage caused to neighbouring property or neighbour's belongings by water from a burst pipe leaking into adjoining premises, *unless* negligence on the part of the householder or tenant can be proved.

Care of Lodger's Property: Any householder who lets rooms is expected in law to take every reasonable care of any belongings left in the room by a lodger. Should any such property be stolen, or damaged through the negligence of the householder, he *may be* liable for making good any such loss.

Treasure Trove: If while digging in your garden you dig up any precious metal, in the form of plate, coins, or jewellery, etc., it becomes 'Treasure Trove', and as such is the property of the Crown, *unless* it is possible to prove that the goods were lost and not hidden there. A coroner's inquest is always held to decide the ownership of 'Treasure Trove'. It is the duty of the householder to report to the police the finding of any such valuables, and to hand the articles concerned to the police for safe keeping awaiting the result of the inquest.

HOUSE PURCHASE

Buying a house is a venture that requires quite an amount of forethought, before one enters into an agreement to purchase. Most of the points for pre-consideration are such that the advice of others can be of little help. The buying of a home is a very individual venture, and if the transaction is to be completely satisfactory the decision must be made by the people who are going to live in the house. Thought should be given to the future—as well as to the present—when buying a house. It is reasonable to assume that it will be your home for ten, twenty, or maybe more years, and even then may well remain as a family property for a still longer period. Therefore the house chosen must be suitable not only for present occupation but for any foreseeable future requirements. As house purchase is an investment as well as a means of having somewhere to live, it should be gone into very carefully, and after having made the purchase the property should be well cared for so as to increase the value of the investment.

The business of buying a house may be divided into three groups of thought and action: *one*, consideration, the process of deciding what kind of a house you want to live in and where it should be; *two*, inspection of the property; *three*, the actual purchase of the property.

Having decided to become a house-owner, it is very tempting to rush into action and start viewing properties of all kinds, but you will save much energy and some

disappointment by resisting this natural temptation and devoting some careful thought to the living requirements of your family, before applying for orders to view. Start by entering your needs in a notebook; list all the points for consideration and revise your notes until you have included every possible factor; in this way you will be more likely to find the ideal home than by letting enthusiasm overwhelm you, to the extent of making a snap purchase. Having noted all your family's requirements for the ideal home, list them in order of their importance.

To the car-owner a distance of several miles from his place of work may be a minor point for consideration, but travelling a distance by bus or train may not be so pleasant in bad weather. In the same way a distance of a mile or even more to the nearest shopping centre may not be of major importance if there is a good bus service, but if the shopping entails pushing a pram for some distance, the position becomes different. A house on a hill may appear very attractive now to young people, but not so appealing to older persons. To some people the garden may be an item to be considered first, to others the distance from the town centre or place of work, while some may place first a modern kitchen or a southerly aspect—the points for consideration depend on the individual family.

It may be that you have always wanted to live in a certain district in your home town, but before finalizing your decision it is well worth the trouble of exploring other districts, some of which you may not have seen for some time, or have only seen on a quiet Sunday afternoon. Study the transport routes to and from your place of work; a broken journey may mean long waits between buses. Consider the local amenities of the district—shops, schools, cinemas, churches, clinics, libraries, sports grounds, etc.

It may be that some members of the family are very averse to noise, and a main road position would be less suitable than a quiet street or cul-de-sac. Should the area be only partly developed, find out if any town or country planning scheme is in operation.

If the district of your choice is in a town it may be assumed that the usual services, gas, water, electricity and sewage, can be easily laid on from public mains, but if the area is on the outskirts of a town, or in a semi-rural area, it is essential to make enquiries about the main services from the boards of control concerned. Of course the lack of laid-on services may be overcome, but this may mean the installation of expensive plant or long-distance connections which would add considerably to the expense of the purchase.

You may have a preference for a modern house over an old-fashioned dwelling, but it is worth considering, that an old house that has been well looked after is a better bargain than a comparatively recently-built house the maintenance of which has been neglected.

The next step in the sequence of buying a house is to inspect several likely properties. This must be done thoroughly. If you feel you lack the knowledge or the agility to make a thorough inspection of the properties concerned, call

in an expert valuer, especially if you are making the purchase privately and not through a building society. Using the Inspection of Property section of this volume as a guide, satisfy yourself that it is worth arranging for a valuation, before going to the expense of employing a valuer.

Because a house has faults it is not necessarily a bad buy, but if you like a house in spite of any obvious drawbacks, it may be possible to obtain the property at a reduced price, consistent with the estimated cost of effecting the necessary repairs. One very important factor for consideration before making a final decision is the cost of general upkeep, not only maintenance of the structure, but service, and local charges such as rates, water rate, and ground rent (if the property is leasehold). The difference between a leasehold and freehold property is that, leasehold means that the land is not included in the sale, it is merely being leased for a fixed term—at the end of the term, whatever it may be, the ground reverts to the original owner, or his heirs, and the land includes anything built on it. The most generally accepted state of condition is freehold, which simply means that the land is purchased with the house, and becomes your complete and absolute property.

The Purchase of the House: Having decided on the purchase of a house, and after considering all the points effecting that decision, the next thing is to arrange the purchase. There are two ways in which a house can be purchased: (a) outright by paying the full purchase price, or (b) by arranging a mortgage and spreading the payment over a period. There are two kinds of mortgages: (1) private mortgages entered into by agreement between the two persons concerned, (2) by arrangement with a building society or insurance company. In certain circumstances the purchase price may be borrowed from a bank, but there is still a form of mortgage involved, by which is meant the property becomes the security for the loan.

In the first place the purchase price should be agreed with the person offering the house for sale, and if the inspection reveals hidden faults the price finally agreed may differ from the one first offered. After the purchase price has been agreed, the question of contract arises (a contract being a form of legal agreement). If you don't know much about the drawing up of contracts—and very few people do—it is always wisest to employ an expert, in this case a solicitor, who will conduct the business for you safely, legally and expeditiously.

The information given above is intended as a general guide to house purchase, and does not deal with every aspect of the transaction or with sets of individual circumstances. One thing is very clear—the buying of a house is something that must be approached with common sense, and in almost every case it is wise to consult a solicitor before signing on the dotted line.

The majority of people purchasing small houses do so on mortgage through a building society or on a private mortgage. It is advisable to know something of the main points arising from mortgage according to the law, before committing yourself. These will of course be explained to you by the solicitor consulted, but

the layman will find that some general knowledge of the subject will be most useful.

The person borrowing the money for house purchase is known as the mortgagor; the person or the society which lends the money is known as the mortgagee. The mortgagor has certain rights which should be included as clauses in the mortgage deed, which is the legal form of agreement which the solicitor will draw up, between the two parties concerned. One of the clauses should stipulate that the mortgagee cannot claim possession of the property unless the mortgagor defaults in repayment of the loan. This means that the occupier is granted the right of sole tenure so long as the periodical payments are kept up on the dates on which they become due. In the case of a loan from a building society, the society concerned becomes the mortgagee—not the original owner of the house, who is paid in full by the building society. Until payments are completed the society is the true owner of the house, the property being used as a form of security against the loan. Should there be serious default in the repayments the mortgagee has the right to resell the property to recover the unpaid part of the loan, but even in these circumstances the mortgagor has some rights; the mortgagee must offer the house at a fair and reasonable price, and any surplus arising from the sale must be paid to the mortgagor. This sort of situation hardly ever arises from house purchase through a building society, but it can arise from a private mortgage.

If the purchase is arranged through a building society, the mortgagor is always urged and strongly recommended, by the society, to insure against default through accident, illness or death. The premium is paid by the mortgagor, and in the case of a long illness the insurance company would meet the mortgage repayments as and when they became due, thus relieving the family of a great deal of worry. In the event of death the insurance company would pay the balance of the mortgage and the house would become the property of the heirs of the mortgagor. If, however, the default is through the negligence of the mortgagor, the mortgagee has the right to take repossession of the property.

A building society of good standing will advance as much as 80 per cent of the purchase price of the property, the remaining 20 per cent being paid at the outset by the mortgagor in the form of a deposit. Therefore if the property is valued at say £2,500 the society would advance £2,000 and the would-be purchaser would pay the remaining £500. The 80 per cent mortgage is usual when the house is to be occupied by the mortgagor and family. In the case of a sitting tenant the society may advance even more, sometimes even as much as the full purchase price in the case of a good tenant of the present landlord of the property.

In some districts the local council may guarantee part of the loan in respect of small houses not exceeding £2,000 in value, in which case a building society will nearly always advance up to 95 per cent of the purchase price of the house in question. However, not all local councils are willing to adopt this scheme, and enquiries should be made before approaching a building society.

The mortgage is repaid to the building society in equal monthly instalments spread over a number of years, the usual maximum period being 20 years. The first step in arranging a mortgage through a building society is to apply for a form of application. It is usual with most of the building societies to pay the inspection fee at the time of submitting the application form, the fee being paid to cover the expense of the society in employing a valuer. The inspection fee will vary according to the value of the property concerned, and the exact amount of the fee will be given on application to the local office of the society with which you wish to do business; the usual fee for this inspection is about £5 for a property worth about £2,000. After inspecting the property and obtaining a valuation report the society will send you a form constituting an offer of advance. This and all accompanying forms must be very carefully read and it is advisable to engage a solicitor to deal with the matter from this point onwards. The solicitor will then explain any points not clear to you, and the offer of advance form is then signed and returned to the society. The mortgagor is responsible for the legal costs arising from an application to purchase, also the society's solicitor's fees and the stamp duties. These vary, according to the circumstances of each case, but your solicitor will be able to tell you exactly what cost will be involved.

The monthly repayments are in respect of the capital loan, plus compound interest on the capital. By agreement with the society you can at any time pay amounts in addition to the agreed monthly payments, so as to clear the loan before the final date. In which case the building society will make an adjustment of the interest on the balance of the capital loan still unpaid.

It is often not appreciated that the mortgagor who has entered into an agreement with a building society may sell the house at any time he wishes, *provided* the full balance of the loan is paid to the society from the sale money received. In cases where the new would-be purchaser is acceptable to the society it can be arranged to transfer the mortgage, but only the building society can decide on the suitability of the new purchaser.

Another method of house purchase is through an insurance company, advances in these cases are made up to about 80 per cent of the purchase price. The purchaser takes out an endowment policy and a life policy, both of an amount to cover the sum involved for 20 years, or for the period agreed. The purchaser pays the premiums on both policies, and at the end of the period the endowment policy repays the loan and interest. Should the purchaser die before the policy matures his next of kin will receive the house without further payment.

Yet a third method of house purchase is to obtain a loan from a bank or private person, your solicitor or bank manager can often give an introduction here. Mortgages of this sort are often charged at a slightly higher rate of interest than the society charges, and for this reason they should always be handled by your solicitor, who will ensure that you do not pay a rate that is higher than reasonable.

No matter by which means the mortgage is obtained, the purchaser will find

that he is obliged to insure the property for fire. It is as well to remember that your responsibility for insurance commences from the signing of the contract. Therefore it is necessary to obtain coverage before you sign the contract.

It may sometimes happen that the purchaser wishes to take possession of the house before the sale is completed, and the vendor may be agreeable. In this case care must be exercised by both parties for no matter how friendly the arrangement, the vendor is in effect allowing the purchaser to become a tenant for that period. The purchaser *must* get the vendor to agree, that by taking possession he does not in any way waive any objection to vendor's title. The vendor *must* ensure that by becoming a temporary tenant, the purchaser does not become a tenant under the Rent Restriction Act. Otherwise the vendor may have difficulty in getting repossession of the house, if the contract and sale are not completed for any reason.

SIMPLE CABINET-MAKING

Type of work—simplicity of construction—graded projects.

TOOLS. *Saws: Panel saw—dovetail saw—bowsaw. Hammers: Pattern-maker's hammer—tack hammer. Planes: Trying plane—block plane—plough and router. Spoke-shave—screwdrivers—chisels—drilling tools—miscellaneous tools. Equipment: Making a shooting-board—mitre shooting-board. Care of tools.*

MATERIALS. *Difference between hardwood and softwood—importance of using seasoned timber—grain patterns—measurements and finishes of hardwoods—terms used in describing timber—types of timbers for cabinet-making—plywood and laminated board—composition board—prepared accessories—adhesives.*

JOINTS. *Joints used in Cabinet-making: Edge joints—mortise and tenon joints—bare-faced and foxwedged tenons—dowel joints—bridle joints—tongue and groove joints—mitred joints—dovetail joints. Compiling a cutting list.*

THINGS TO MAKE. *Trays—dinner-wagon—needlework stool—bedside cabinet—fitted bedhead—coffee-table—occasional tables and contemporary furniture—bookcases.*

WOOD FINISHING. *Types of finishing. Finishing with oil—preparation—cleaning down—filling the grain—applying the oil—burnishing and polishing. French polishing—preparation—types of polishes—stages of french polishing—application of the polish—fadding—bodying—spiriting off—amateur polishes. Polishing with wax—preparation—formula for furniture wax polish—application and finishing.*

THE term 'cabinet-making' is used broadly in this book to describe the manufacture of articles of woodwork that, although simple in construction, require more skill and care generally in their construction than the articles of woodwork described in the section, 'Carpentry'. The articles of carpentry described in that section are mostly pieces of built-in furniture and fitments, and simple handyman equipment such as a workbench, household steps and a paperhanging table which are made in the simplest possible way. All the articles described in the section on 'Carpentry' are made of softwood. The articles described in this section on cabinet-making are pieces of furniture which are not affixed to the structure. The pieces described in this section have been specially selected and graded to develop the skill of the handyman in progressing with the craft of woodworking. All the articles described in this section are within the scope of the beginner to this branch of handywork, the prosecution of which can do much to improve the comfort of a home and save considerably on costs. All the carpentry tools and equipment described in the section, 'Carpentry', and in the section, 'Handyman's Basic Tool Outfit', may be used for cabinet-making, but for this more skilled branch of woodwork some additional tools will be required and these are described below. It has been previously mentioned that it is false economy to purchase inferior tools for use in any branch of home handyman work and this is especially true of the tools

used in cabinet-making. A tool of good quality endows the user with confidence. A good tool has a much longer life than a cheap one and the use of tools of inferior quality, in most cases, results in inferior workmanship.

TOOLS

It is not necessary to purchase all the tools illustrated below at the commencement of cabinet-making; most of them can be acquired and added to the basic handyman's kit as progress is made in the work.

Saws: In addition to the handsaw, tenon saw, hacksaw, coping saw and nest of small saws, the handyman-carpenter will also require a *panel saw* and a *dovetail saw* for cabinet-making. An optional addition to the tool-kit for cabinet-making is a bowsaw. These extra tools are described below.

Panel Saw: A panel saw is similar in shape and appearance to a crosscut saw. A panel saw is used for fine sawing and it produces a neater edge than a crosscut saw. It may also be used for cutting large joints. A panel saw, which is illustrated in *Fig. 115*, may be obtained in different sizes with blades ranging from 18 in. to 24 in. in length. The variation in blade length is to cater for the different arm reaches of users and the handyman who is small in stature should buy saws with short blades. The tall handyman will find a long-bladed saw easiest to handle. The teeth of panel saws vary in number from 7 to 12 per inch, and a sensible medium number of teeth is 10 to the inch.

Dovetail Saw: A dovetail saw is similar in shape and appearance to a tenon saw, but is smaller and has finer teeth for cutting small joints and for other general fine work. The bottom of the handle of a dovetail saw is usually open as illustrated in *Fig. 115* while the handle on a tenon saw is closed. Dovetail saws vary in length from 8 in. to 10 in., and may be obtainable with teeth per inch from 18 to 22. A saw with 20 teeth to the inch will be found best for most purposes.

Bowsaw: The bowsaw, which is an optional addition to the cabinet-maker's tool outfit, is used mostly for cutting curves and is similar in function to a scroll saw. A bowsaw, which is a much larger saw, has a capacity for heavier work. The bowsaw, which is illustrated in *Fig. 115*, has a replaceable blade and the saw frames may be obtained to accommodate blades ranging in length from 8 in. to 16 in. The blades are tightened in the same manner as a tourniquet by a lever which is fitted to the top of the side members of the frame (see *Fig. 115*). The blade of the bowsaw is fitted with the teeth pointing away from the handle.

Hammers: The handyman's outfit should be supplemented for cabinet-making by the addition of a *pattern-maker's hammer* and a *tack-hammer*. Both these tools are described below.

Pattern-maker's Hammer: The pattern-maker's hammer is illustrated in *Fig. 116* and it is suitable for driving panel pins and other small nails and for large tacks. It has a smaller blade than the Warrington hammer but is longer in proportion. Pattern-maker's hammers are obtainable in weights from 3 oz. to 6 oz.

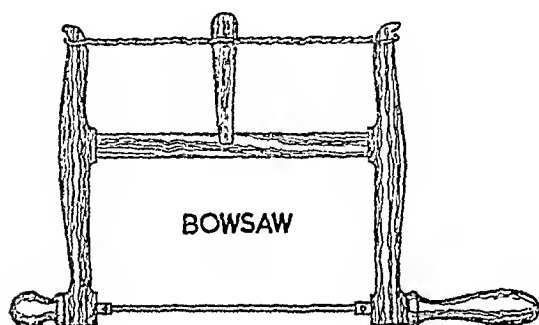
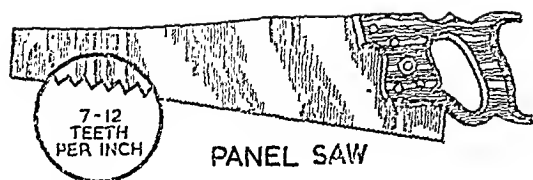


Fig. 115.

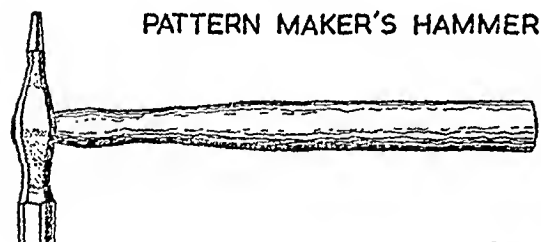


Fig. 116.

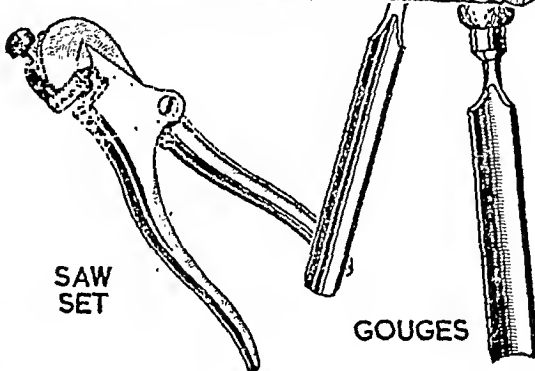
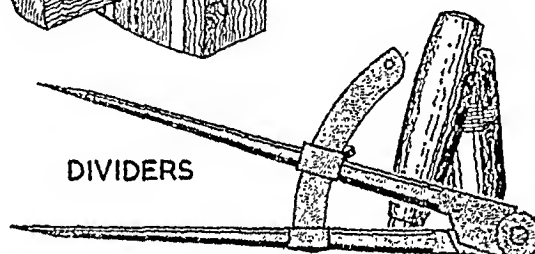
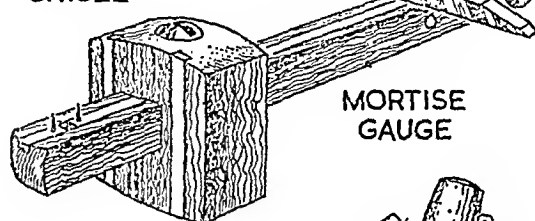
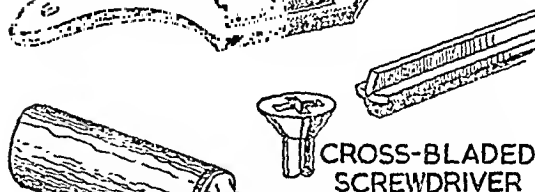
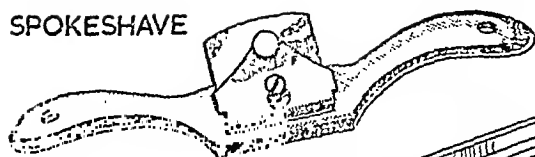


Fig. 117.

Tack-hammer: This tool, as its name implies, is used mostly for driving tacks. It may also be used for driving small nails. The head of a tack-hammer is similar in shape to that of a large claw hammer.

Planes: The main planes required for cabinet-making are a smoothing-plane, jack-plane and rebate-plane. Additional planes required are a *trying-plane* and a *block-plane*.

Trying-plane: A trying-plane is similar in appearance to a jack-plane except that the body is much longer. A trying-plane is used for truing large pieces of work and for large joints. The length of a trying-plane varies from 20 in. to 24 in.; for most purposes the intermediate 22-in. length will be found most suitable. Trying-planes have a cutter width of $2\frac{1}{2}$ in. A trying-plane is illustrated in *Fig. 118*, which also shows the correct method of holding.

Block-plane: A metal block-plane is illustrated in *Fig. 118*. This tool has many uses for the cabinet-maker, but it is used mainly for trimming small work. Block-planes vary in length from 4 in. to 7 in. A block-plane of 5 in. is suitable for general purposes. These planes are obtainable with cutters of widths from 1 in. to $1\frac{5}{8}$ in.

There are very many other types of planes, most of which are used for special purposes in all branches of woodwork. It is unlikely that the handyman cabinet-maker will require more planes than those already described and illustrated, but the enthusiast could profitably consider the addition of two extra tools which come under the general heading of 'Planes'. These are a *plough* and a *router*. Both tools are made with metal frames which will be found best for the beginner to this branch of woodwork.

Plough: This tool, which is illustrated in *Fig. 118*, has 8 interchangeable grooving cutters varying in width from $\frac{1}{8}$ in. to $\frac{9}{16}$ in. and the plough is used mainly for cutting grooves in wood, but it may also be used for working rebates. The plough illustrated in *Fig. 118* has an adjustable fence.

Router: This tool is also illustrated in *Fig. 118*, which shows the correct method of holding. A router has an adjustable blade; the tool is used for working recesses or levelling them and will be found extremely useful for working the stopped grooves of housing joints.

All the metal planes described should be frequently lubricated during use; this is done by wiping the sole of the tools with a rag dipped in linseed oil.

The handyman cabinet-maker should be able to turn out some good work with the planes mentioned. The really ambitious woodworker may be interested in a *universal plane*.

A universal plane has very many uses in woodwork and the one illustrated in *Fig. 118* has a very wide range of cutting blades, the end shapes of some of which are also illustrated. These tools, although expensive, are not costly in relation to their use and purpose, but it is not suggested that the would-be cabinet-maker considers the inclusion of a universal plane essential in the initial outfit.

Spokeshave: This is another cutting tool which has not been previously mentioned; a metal spokeshave is illustrated in *Fig. 117*. This tool is used mainly for shaping and it is drawn towards the user over the wood being shaped. Metal

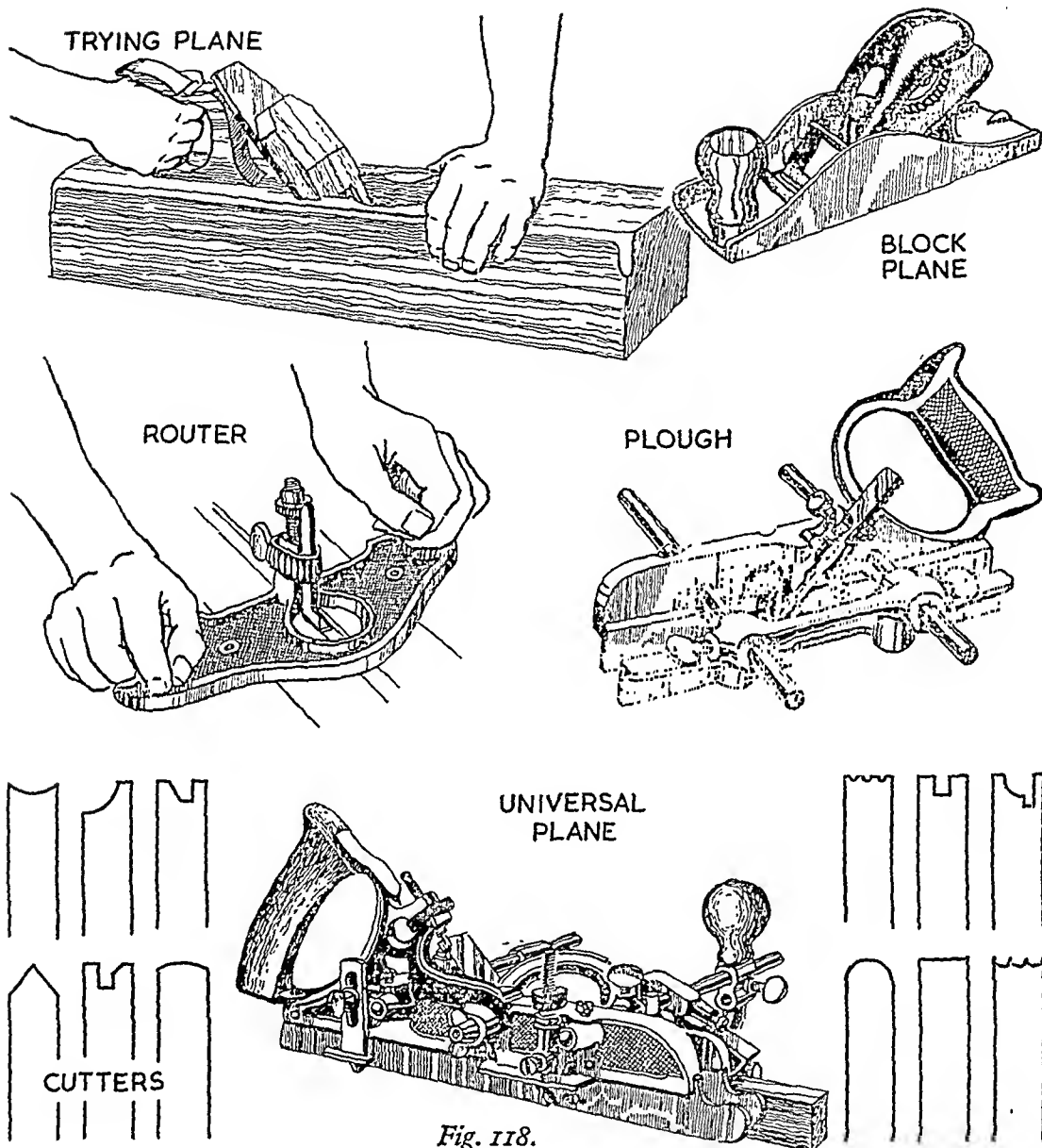


Fig. 118.

spokeshaves have a flat face for convex work or shaping straight edges and rounded face for shaping concave curves and it is necessary to use the correct shape for the different job being done. It should be appreciated that it is the metal frame that is shaped and not the blade.

Screwdrivers: The screwdrivers described in the section 'Handyman's Tool Outfit' are suitable for cabinet-making, but these may be supplemented by the addition of the same type of screwdriver in intermediate sizes and it may be necessary to add a cross-bladed screwdriver which is illustrated in *Fig. 117*.

Chisels: In addition to the firmer chisels with blade widths of 1 in., $\frac{1}{2}$ in. and $\frac{1}{4}$ in., the cabinet-maker should add other blade widths as they are required. An additional type of chisel for cabinet work is a *sash mortise chisel*, which is illustrated in *Fig. 117*, and this type of chisel is available in blade widths from $\frac{1}{8}$ in. to $\frac{3}{4}$ in. These may be purchased in the different sizes as their need is required. Also under the heading of chisels for cabinet-making are *Gouges* (*Fig. 117*).

Drilling Tools: Those previously described are suitable for cabinet work, and the sizes of drills and bits mentioned may be supplemented with additional sizes as their use becomes necessary.

Miscellaneous Tools: The most important tool under this heading is a *mortise gauge*, which is illustrated in *Fig. 117*. The mortise gauge is similar in appearance and function to a marking gauge except that it has two blades which may be adjusted for marking mortise and tenon joints. A pair of dividers for spacing odd measurements will be found useful (*Fig. 117*) and the cabinet-maker should consider adding more cramps to the basic tool outfit as their need becomes apparent.

Two additional pieces of equipment are required and these may be made by the handyman cabinet-maker; these are a *shooting-board* and a *mitre shooting-board*.

A shooting-board is used for squaring and trimming the ends of pieces of wood; the size of a shooting-board may be any length to about 5 ft. or 6 ft. For most purposes a shooting-board 24 in. to 3 ft. in length will be found suitable.

A mitre shooting-board is similar in function to a shooting-board and a reasonable length for most purposes would be 18 in. Both pieces of equipment are shown in use in *Fig. 119*.

The additional tools mentioned above should be all that will be found necessary by the beginner cabinet-maker; these of course are all hand tools and the handyman who intends doing a great deal of this kind of work would be well advised to consider the possibility of investing in power tools of the type based on a power drill. These drill units, of which there are several different makes, may be adapted with suitable conversion outfits made by their manufacturers for use as disc sanders, grinders, buffers, polishers, for light wood-turning, for use as bench drills, for bench-saws, also for rip-sawing and for fret-sawing.

In addition to these small outfits which have quite a good capacity, the real enthusiast may like to consider the possibility of investing in larger woodwork machines which may be used for planing, sawing, turning, sanding and joint cutting, etc.

Care of Tools: To get the best out of woodworking tools it is necessary to keep them in good condition. All metal tools should be wiped over with an oily rag before putting them away and the edges of cutting tools should be sharpened *after*

using them—although in most cases this is done before using them, only when the necessity for sharpening edges becomes apparent. It is, however, a good habit to develop a definite sequence for sharpening and cleaning tools and this should be done after the tools are used *before* they are put away. Remember it is the blunt tool which slips and causes accidents. The method of sharpening chisels and plane-blades has been described previously. Saws are best sharpened by an expert although there are mechanical devices for setting saws which are reasonably fool-proof when used by inepts. A saw set is illustrated in *Fig. 117*.

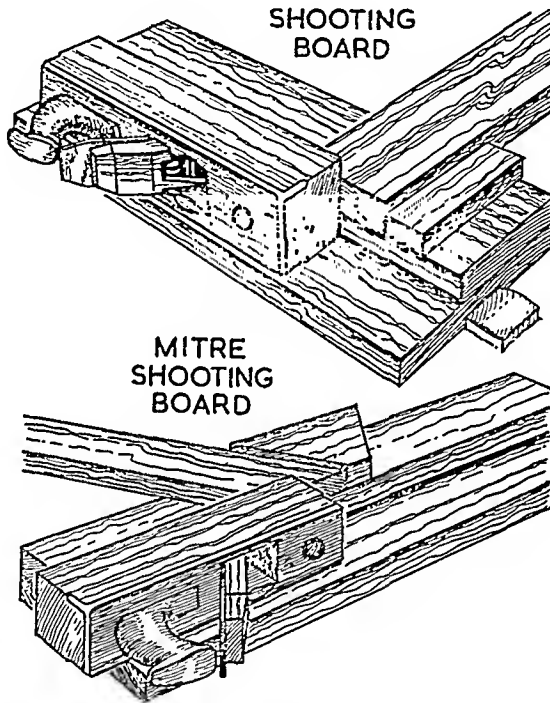


Fig. 119.

MATERIALS

The carpentry materials described previously consist of softwood (pine), plywood and hardboard, and these three materials are quite suitable for the majority of simple jobs. The handyman cabinet-maker will, however, need to draw on a wider range of materials for making furniture, although those mentioned above are quite suitable for some types of furniture. For instance, they may be used successfully for making kitchen and bathroom cupboards and cabinets and for painted furniture. There is a wide variety of available timbers from which furniture is made

and in most cases cabinet-making is done with hardwood. The difference between hardwood and softwood is as obvious as their names imply, the latter being softer and easier to work, although softwoods are not regarded as being so attractive in appearance or to have such a long life as hardwoods. Hardwoods are less suscep-

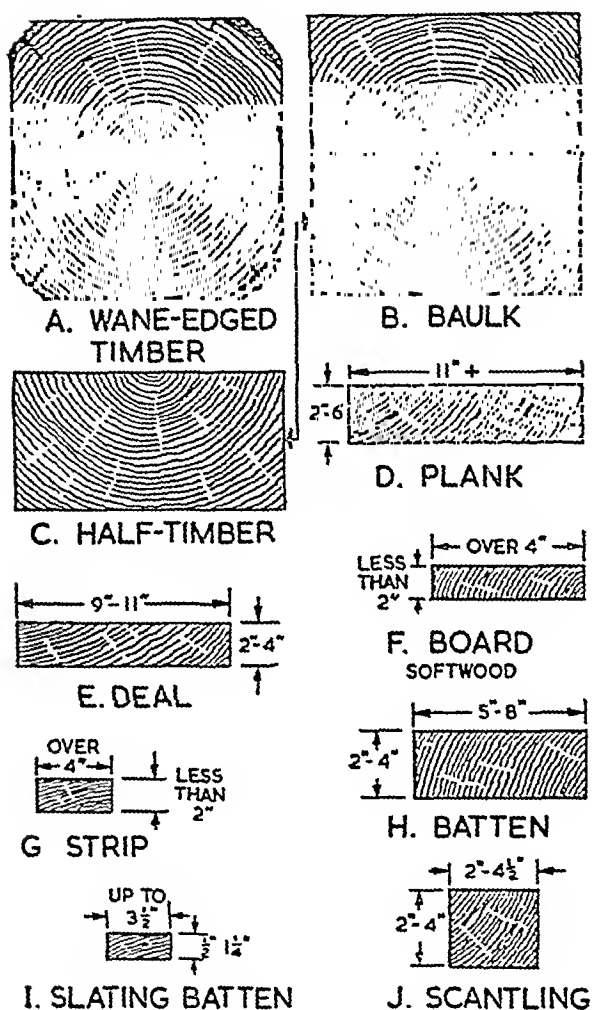


Fig. 120. Timber terms

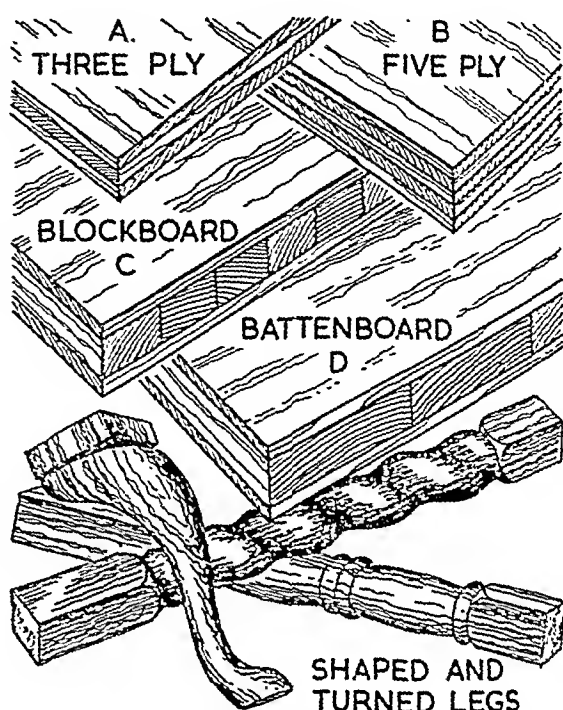


Fig. 121.

tible to varying changes in atmospheric conditions than softwoods, provided they are seasoned. 'Softwood' is the descriptive term for timbers obtained from needle-bearing trees—such as pine trees. 'Hardwood' is the term used to describe wood obtained from trees bearing leaves—such as oak trees. The seasoning process is done to remove surplus moisture from green, freshly-cut timber, and to allow the green wood to find its own shape. Seasoning of timbers used to be done

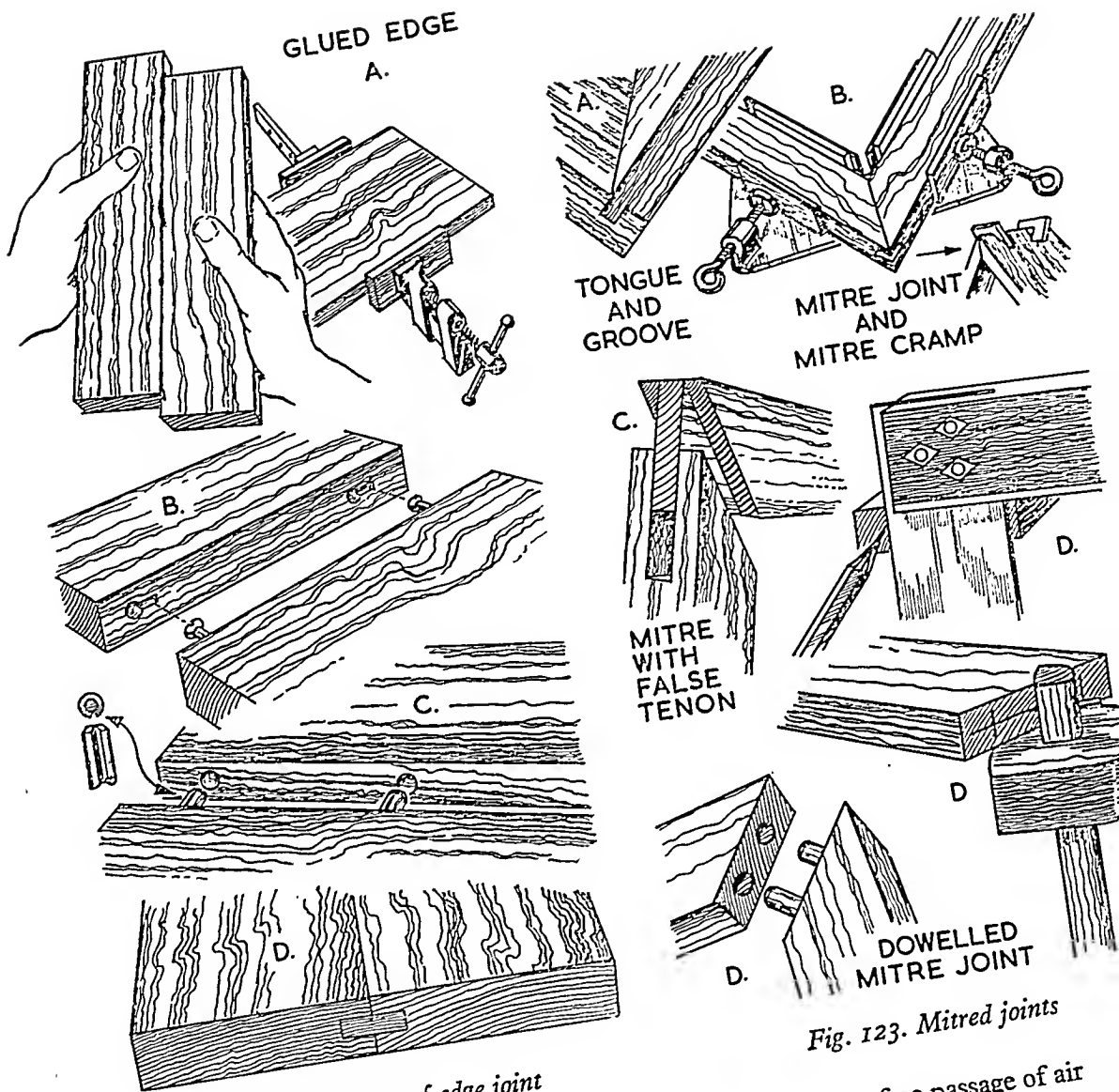


Fig. 122. Types of edge joint

Fig. 123. Mitred joints

naturally by stacking the sawn wood under cover to permit the free passage of air through the pieces of wood. Nowadays seasoning is mostly done by the process of kiln drying, the timber being dried artificially to speed up the natural seasoning processes. All wood used by the handyman should be seasoned timber, otherwise it will shrink and twist and perhaps split after it has been cut and shaped and made up. Of course there is always a certain amount of natural movement in all

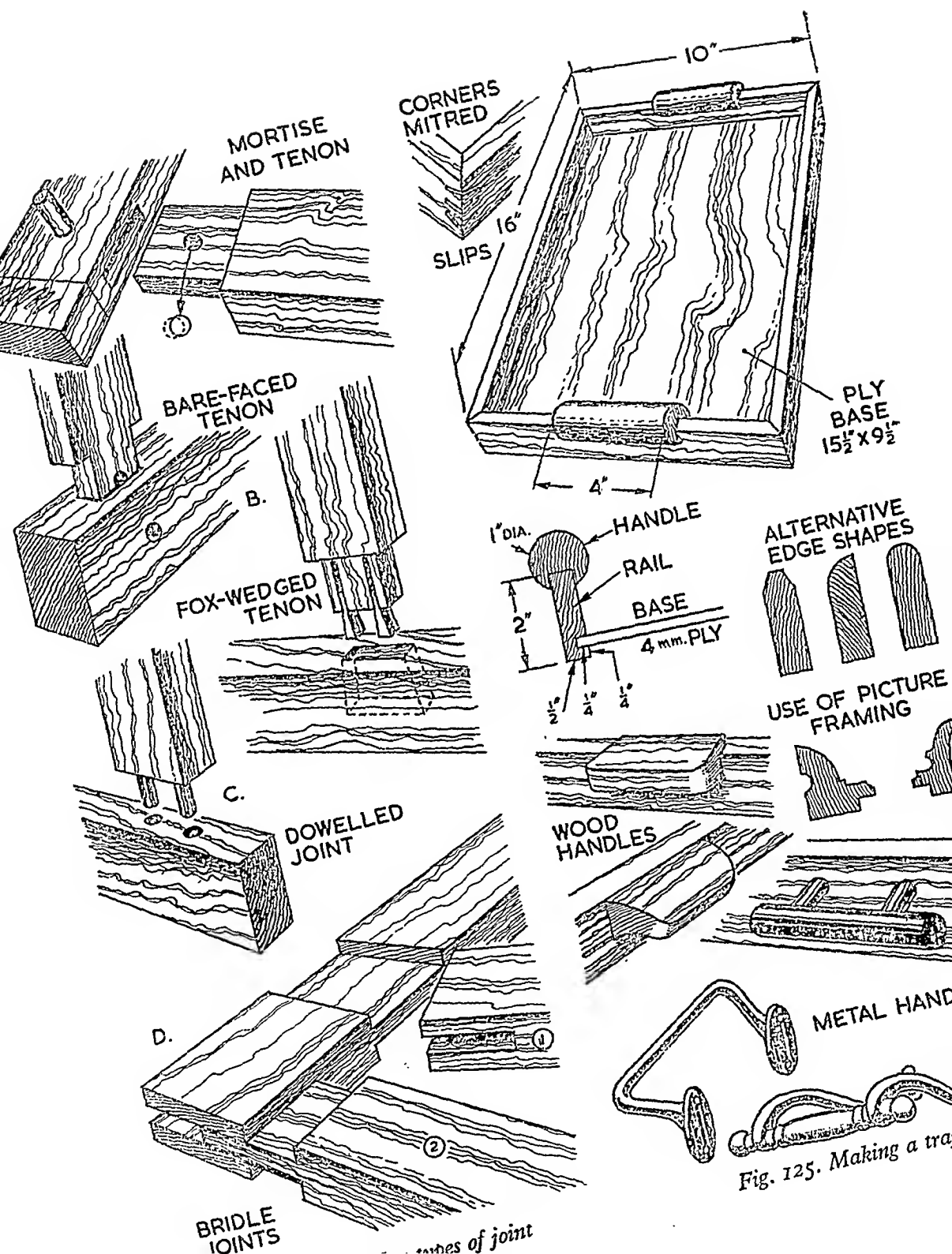
woods even after seasoning and most varieties of timber tend in varying degrees to shrink in dry, hot conditions and swell in damp atmospheres. That is why doors and windows tend to jam in wet weather and why the drawers and doors of a piece of furniture which is moved from a well-heated room into one that is not so well heated may stick in their frames. In cabinet-making the natural tendencies of seasoned wood to respond to differences in atmospheric conditions are allowed for in the methods of jointing and assembling.

Most furniture is polished, or is stained and polished, and the natural grain formation of the wood used plays quite an important part in the appearance of the finished job. The handyman cabinet-maker should bear this factor in mind when selecting the timber for making up a piece of furniture. There should be no very great differences of the grain patterns in adjoining pieces of wood or throughout the job, unless a contrast is required. In this case, varieties of timber may be mixed in a job such as—to quote a popular example—walnut and oak.

Hardwoods are supplied in the same measures and finishes as softwoods, that is, in stuff (or sawn) sizes or prepared sizes. 'Sawn' is descriptive of the timber as supplied by the saw mills; 'prepared' timber is the sawn timber which has been passed through a planing machine to remove the roughness left by the circular saws. The order sizes of both groups of timber are the same, for instance—to give a simple example—if you order a piece of 2 in. by 1 in. *sawn* timber, you would receive a piece measuring exactly that size, but should you order a piece of 2 in. by 1 in. *prepared* timber, the actual size of the piece would be smaller by the amount cut off in preparing the piece. Depending on the differences of settings between individual planing machines, the reduction would be approximately $\frac{1}{16}$ in. on each face, so that the 2 in. by 1 in. *prepared* timber would actually measure $1\frac{7}{8}$ in. by $\frac{7}{8}$ in. This factor of the slight reduction in the sizes of *prepared* timbers should be taken into account when compiling a cutting list for a piece of furniture. In most cases prepared timber is used for cabinet-making.

Apart from the size of the timber, i.e. the thickness and width, pieces of wood are purchased by their length and there are two descriptions of length which concern the handyman. The first is per foot *run* and the second is per foot *super*. Purchasing timber at per foot *run* simply means that the length of timber required is supplied irrespective of the width or thickness; therefore, if 20 ft. of 6 in. by 1 in. timber was purchased at per foot *run*, the timber would be charged at that rate, at so much per foot. In purchasing timber per foot *run*, it is necessary to take the amount required in lengths convenient to the timber merchant; if specific lengths are ordered, which entails cutting the stock sizes stored by the timber merchant, this may entail a slightly greater cost.

Timber purchased per foot *super* simply means that the price charged is according to the square footage of the material irrespective of the thickness and this method of purchase per foot *super* is usual when obtaining hardwoods, whereas per foot *run* is usually applicable to softwoods. Therefore, in the purchase per



foot *super* of 20 ft. of 6 in. by 1 in. prepared hardwood the cost would be arrived at by estimating the square footage, which is 20 in. by 6 in., equalling 120 sq. ft.; therefore, the price would be the amount of the quoted price per sq. ft. by ten.

Different names are given to pieces of wood of different size and some confusion may arise from the loose application of correct terms. For instance, some handy-men and quite a few wood merchants, too, call all softwoods 'deal', whereas the term 'deal' is a descriptive name applied to wood of a certain size. A more general instance of this confusion of names is the use of the terms 'plank' or 'batten'. To clarify this a brief description of the terms applied to timber of different shapes and sizes is described below and illustrated in *Fig. 120*.

The illustration (a) in *Fig. 120* shows a log that has been partially squared; this is known as 'wane-edged baulk' and the wane-edged part of the name refers to the rough pieces on the corners. The pieces of timber trimmed from the log to leave the wane are known as 'slabs'. The illustration (b) in *Fig. 120* shows a log that has been trimmed squarely and this is known as a 'baulk' of timber. If the baulk is sawn along the centre as illustrated in (c) in *Fig. 120*, the two pieces are known as 'half timbers'. A 'plank' illustrated in (d) in *Fig. 120* is a section of timber, cut after the log has been trimmed, which is at least 11 in. wide, varying in thickness from 2 in. to 6 in. The term 'plank' is used popularly in referring to timbers of other sizes, but this description is concerned only with correct usages for the different names. The illustration (e) in *Fig. 120* shows timber referred to as 'deal'. This is softwood of a size between 9 in. and 11 in. wide and varying from 2 in. to 4 in. in thickness. *Fig. 120* (f) shows a 'board' (of course, this term is used popularly to describe timbers of different sizes). The descriptive name 'board' is usually applied to softwood of over 4 in. wide which is less than 2 in. thick. When using the term in reference to hardwood, the descriptive name 'board' is applied to hardwood of any width with a thickness of not more than 1½ in. *Fig. 120*(g) illustrates a 'strip' of wood and this name is used to describe timbers of less than 4 in. in width and which are not more than 2 in. in thickness. *Fig. 120*(i) shows a 'batten'. This term is correct when applied to softwood of these sizes (but it is loosely applied to all kinds of woods of varying sizes; however, this description is only concerned with correct usage). (j) shows a 'slating batten' which may also be referred to as a 'tiling batten' and pieces of wood of this size and shape are used mainly, as their name implies, for providing support for slates and roofing tiles. The size of a slating batten may be anything up to 3½ in. in width and anything from ½ in. to 1 in. in thickness. *Fig. 120*(k) shows a 'scantling' which is a descriptive term applied to pieces of wood varying between 2 in. and 4½ in. in width and 2 in. to 4 in. in thickness.

Although it has been previously mentioned that softwood is easier to work than hardwood, the handyman-carpenter will find that hardwood can be worked with greater accuracy than softwood, provided the cutting tools are kept well and properly sharpened. The timber descriptions below are the popular varieties of

hardwood used extensively in modern cabinet-making and if a greater variety of choice is required, the handyman should consult his local timber merchant. Speaking generally, most timber of all kinds is not as plentiful as it used to be, although the range of varieties of timbers now used commercially has increased, and it may be that required sizes of special timbers may not always be easily available.

English Oak: This is, and has been for many years, one of the most popular timbers used for making furniture. English oak has very good grain markings, is extremely durable, has a long life and it is not very difficult to work. Grain features of English oak vary according to the method of cutting the tree and figured oak, which is generally regarded as having the most attractive grain, is cut by rather a wasteful method which does make it more costly than oak, which is economically and squarely cut from the log. English oak, as with other forms of timber, should be properly seasoned before it is used for cabinet-making.

Japanese Oak: The grain markings of Japanese oak are not so attractive as those of English oak, although it is very much cheaper. It is less durable than English oak and has a greater tendency, even with seasoned wood, to shrink and warp. Japanese oak is suitable for small articles but it is not recommended for making large pieces of furniture; it is quite easy to work and finishes well.

Mahogany: Mahogany is rich in colour and is easy to work. It is a popular timber for making all kinds of furniture. There are several varieties of mahogany grown in different parts of the world and the grain figurings and colourings may vary with the different varieties. Mahogany is not so easy to obtain as oak and this fact should be considered when planning a large piece of furniture because of the difficulty in making the best use of grain formations with restricted supply.

Walnut: English walnut has very attractive grain formations and clear distinctive markings. It is reasonably easy to work with sharp tools but it is rather costly. In modern cabinet-making walnut is used with other woods of contrasting grain formation such as oak and sycamore.

Sycamore: Sycamore is a very light-coloured wood, used mostly for bedroom furniture. It works easily and well and may often be used with woods of darker colours. It finishes very smoothly and is also used extensively for kitchen furniture and implements.

The varieties of timber described above are those in most general use for cabinet-making and many other varieties are used today but they may not all be obtainable in small quantities from local suppliers.

Plywood: Plywood is a very versatile material which will be found extremely useful for many purposes by the handyman cabinet-maker. Plywood is a material made of three or more thin pieces of wood bonded together, with the grain formation of each piece running at right angles to the next. This formation of plywood gives it great strength and prevents it splitting, shrinking and stretching—although the cheaper varieties of plywood may warp when they become damp. The usual construction of plywood is illustrated in *Fig. 121(a)* which is generally referred to

as 'three-ply'. Three-ply may have more than three laminations as illustrated in *Fig. 121(b)*. Usual thickness of plywood is from $\frac{1}{8}$ in. to $\frac{1}{4}$ in. Multi-plywood is obtainable in thicknesses ranging from $\frac{5}{16}$ in. to 1 in. Plywood is supplied in the form of panels of standard sizes; as most of this is foreign in origin the metric system of measurement is used to describe thicknesses.

The best quality plywoods are bonded with synthetic-resin adhesive, which makes them impervious to moisture, and they will not warp or blister when wetted.

In addition to plywoods there are several kinds of laminated board which will be found useful by the handyman cabinet-maker; these are illustrated in *Fig. 121*: (c) shows a section of blockboard, (d) shows a batten-board and (e) shows a true laminated board. Where plywoods and laminated boards are used for furniture-making it is necessary to treat their raw edges. All the sheet materials described above may be obtained with veneered surfaces being faced with thin pieces of the most popular hardwoods such as oak, mahogany, walnut, etc. As far as the handyman cabinet-maker is concerned, the use of plywood and laminated boards effects a great saving on the cost of the job. They are extremely strong and they may be used successfully for many purposes in cabinet-making.

Composition Boards: There are many different kinds of composition boards which are made in sheets of standard sizes in varying thicknesses. The most common of these is hardboard. Generally speaking composition boards are not widely used in cabinet-making although they are employed quite often in modern furniture. They may be suitable for some purposes such as the back of a cupboard or the base of small drawers. The amateur cabinet-maker is advised to use plywoods instead of hardboard for such purposes when making pieces of furniture of good quality.

Under the heading of composition boards come Formica and Wareite. These are thin plastic substances which may or may not be laminated to plywood. They are used mostly for covering kitchen working surfaces and for bathrooms. Both types are available in a very good range of colours and they are extremely hard wearing.

Prepared Accessories for Cabinet-making: Prepared accessories have obvious advantages for the handyman cabinet-maker. They consist mainly of shaped legs, in woods of different kinds (some examples of turned and shaped legs are illustrated in *Fig. 121*); also moulding and beading which consist of lengths of shaped strips of wood used for edging treatments (*Fig. 121*). Mouldings and beadings are available in a good range of sizes and shapes of woods, and at prices which make it uneconomical for the handyman to work and shape his own.

Adhesives: There are many kinds of branded wood glues and adhesives for use in cabinet-making. The most interesting and versatile of these are synthetic-resin cements which will be found ideal for cabinet-making. This modern adhesive consists of two different ingredients which are supplied in separate containers—one holding a synthetic resin, the other a hardener. In use, the resin is brushed on

to one of the surfaces and the hardener is brushed on to the other. When the surfaces are brought together they are held firmly but lightly when the hardener reacts on the resin to form very strong adhesion of the joint. The advantage of using synthetic-resin adhesives is that the joint formed may be worked from 30 minutes to 1 hour after the surfaces have been brought together, and it is not necessary to cramp a job up and leave it overnight before it can be touched again.

Miscellaneous Materials: These consist of nails and screws of different kinds, also hinges, handles and other fittings which are obtainable in a very wide variety for different purposes.

WOODWORKING JOINTS

In addition to the various joints described in the section on 'Carpentry', the joints described in the following instructions are used for cabinet-making.

Edge Joints: The joints illustrated in *Fig. 122* are used for joining the edges of narrow boards to form wide panels. The edges of the boards which are being joined must be straight and square and the preparation of the edges is best done with a trying-plane.

Before applying the glue or cement, the joining edges should be tested for straightness and squareness. A simple way to do this is to place the edges of the boards together—as they will fit when glued up—and hold them up to a light. If the preparation has been done thoroughly no streaks of light should penetrate the joining edges. The method of gluing may vary according to the type of glue used; if wood glue is employed the edges of the parts should be warmed before bringing them together, as shown in the illustration (*Fig. 122 (a)*), and the wood glue, which may be warmed in a jacketed container to a good point of fluidity, should be liberally brushed on the joining edges. With this done, one board should be held in a vice and the free board, placed glued edge to glued edge, rubbed to and fro along the fixed board to eliminate air and to squeeze out any surplus glue. This forward and back movement should be done, exerting a good pressure downwards on the free board until it is too stiff to move easily. At this stage the two parts should be cramped up and the job left until the glue is set hard. If a synthetic-resin cement is used, one of the joining edges should be coated with the resin and the other with the hardener. The board should then be cramped up as shown in *Fig. 122 (a)*, with waste pieces of wood protecting the edges of the boards from the feet of the cramps. Any surplus glue, either of the synthetic variety or a vegetable wood glue, should be wiped off the surface of the wood with a damp cloth. Although glue may be removed from the wood after it has hardened, it may leave a 'watery' patch which may be visible under stain or polish, and it is advisable whenever gluing, whatever the type of glue used, to clean off any surplus adhesive immediately the joint has been secured. In the case of synthetic-resin cement it will be found that the resin sets very hard, in fact to such an extent

that unless surplus is removed while the glue is soft, the removal of the hardened cement will take the keen edge off cutting tools.

The illustration (*Fig. 122(b)*) shows an alternative method of jointing the edges of boards. This is done by using screws to secure the joint; the positions of the

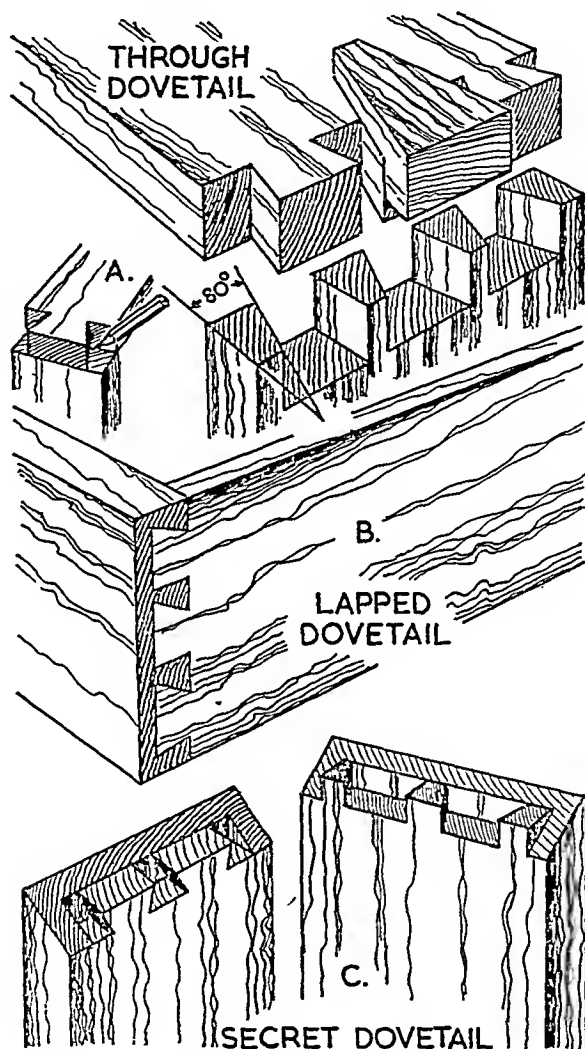


Fig. 126. Dovetail joints

screws and screw holes, as shown in the illustration (*Fig. 122(b)*), are marked out with a marking gauge, set to half the width of the wood, and with a try-square used to mark across the wood at evenly spaced intervals—both edges, of course should be trued and squared before marking out. Screw holes are sunk into one of the edges to be joined and screws are driven into these to allow the heads to

protrude for about $\frac{1}{2}$ in. above the surface of the wood. Screw-head holes and slots as shown in the illustration (*Fig. 122 (b)*) are cut in the other joining edge and the boards are then placed together so that the heads of the screws fit snugly into the holes. The two boards are then cramped tightly together and the board with the screw-heads is driven along the other board with a mallet to force the protruding heads of the screws into the wood above the slots. This method of jointing is quick, accurate and strong.

Another method of making edged joints consists of the use of dowels and these are advisable when joining the edges of thick boards. The edges of the boards should be planed and squared in the usual way. The positions of the dowel holes are marked with a marking gauge set to half the width of the wood. The cross positions of each dowel hole are marked across at the same time with a pencil and try-square. The point at the crossing lines of both edges should be pierced with a bradawl before drilling the waste with a twist-bit set in a hand brace or an electric drill. It is essential that the holes be drilled perfectly upright and this job is best done with the wood held firmly in a bench vice. The holes should all be bored to the same depth and to regulate this a depth gauge is obtainable for fitting to twist-bits. With the holes drilled the rims of them should be *slightly* counter-sunk. The dowel pins are cut from dowel rods of exactly the same diameter as the twist-drill; the length of each dowel pin should be slightly *less* than that of twice the depth of the bored hole. With the dowel pins cut to length the corners of the ends should be chamfered off as shown in *Fig. 122* and a shallow channel cut along one side of each pin with a dovetail or tenon saw (this is also illustrated in *Fig. 122*). The channel acts as an escape route for glue entrapped in the holes. To secure the joint all the dowels of one board should be set in place with a mallet, both the dowels and the holes should be glued before jointing the boards together. In addition to gluing the free ends of the dowel the joining edges of the boards should also be glued. With this done the joint should be lightly closed with a mallet before cramping the boards together. Wipe off any surplus glue exuding from the joint before leaving the boards to set.

A fourth method of jointing edges is illustrated in *Fig. 122 (d)*, this is a tongued and grooved joint. After the boards have been squared, and the edges are square and true, the grooves are cut in both of the joining edges with a plough fitted with a blade equal to one-third the thickness of the board. The tongue which fits into the grooves consists of thin slips of wood and these are best cut with the grain running askew for greater strength as illustrated in *Fig. 122*. It will be inadvisable to cut the complete length of tongue from one piece and the tongues are best cut in lengths of about 12 in. They should be cut and shaped to fit snugly and tightly into the grooves; with this done both grooves should be glued, the tongue inserted, the boards malletted together and cramped up. As an alternative to this method, the groove need only be cut in one board, a rebate plane being used to work a tongue on the joining-board.

Mortise and Tenon Joints: There are several types of mortise and tenon joints which are used extensively in cabinet-making, because of their rigidity and strength. The method of jointing two pieces of wood with a mortise and tenon joint is illustrated in *Fig. 124(a)*. As is usual the two pieces of wood should be squared up and trued. The width of the joint of both pieces of wood is marked with a mortise gauge, which has been described above, with both points of the gauge set so that the marks are made in the same place, whichever side of the wood the face of the gauge is pressed against and drawn along.

The illustration shows that the piece of wood in which the mortise (the rectangular hole) is cut has an extra piece at the end to enable the recess to be cut without splitting the wood. The waste piece is cut away after the joint has been secured. The mortise is cut with a chisel having a blade width of exactly the width of the slot; some of the waste may be removed with a drill. The tenon part of the joint is cut across the grain with a tenon saw and the waste is removed with a chisel. To ensure maximum strength of this joint, it is necessary to cut both parts accurately and this job is one that can be practised on waste pieces of wood until the handyman cabinet-maker becomes efficient. In some cases where extra strength is required, this may be afforded by the use of a draw dowel which is inserted through a hole drilled through both parts of the joint. The hole in the mortise is slightly staggered from that cut in the tenon, as shown in the illustration (*Fig. 124*), so that insertion of the dowel pin, after the joint has been glued, locks the tenon and draws it firmly into the mortise. The excess glue should be wiped off immediately the joint is secured and the waste end of the mortise member, and the ends of the dowel pin, are trimmed after the joint is set.

Barefaced and Fox-wedged Tenons: *Fig. 124(b)* illustrates some variations of the mortise and tenon joint described above. The mortises for barefaced tenons are cut in the same way as described above. The tenon half of the joints is formed so that the thickness of the wood is not reduced and this is shown clearly in the illustration. The method of securing the joint is as described above. The barefaced tenons may be strengthened by the use of a draw dowel as explained above.

The fox-wedged tenon, which is also illustrated in *Fig. 124(b)*, forms a very secure joint if the parts of the joining pieces are carefully and accurately cut. The extra strength in this joint is provided by the two wedges shown in the illustration which are forced into the slits cut into the tenon half of the joint when the two pieces are secured. In this joint the tenons should be slightly less than the depth of the mortise. This, and the other joints described in these instructions, should be practised by the amateur on odd pieces of wood, before employing them in the making of pieces of furniture.

Dowelled Joints: This joint is useful for securing corners of frameworks of light and simple construction. Joints made with dowels are easy to cut and secure but they have less strength than the mortise and tenon joints described above. The thicknesses of the two pieces of joining wood should be the same and the joining

surfaces should be squared and trued in the usual way before marking out and cutting the dowel holes, which is done in the same way as for the edge joints previously described. The dowel pins are cut slightly shorter than the depth of the holes into which they fit. The ends should be chamfered and a glue-escape groove cut into the side of each pin. The joints are glued and cramped up in the usual way as described above.

Bridle Joint: This joint is illustrated in *Fig. 124 (d)*; it is particularly useful in cabinet-making and the construction of frames. A bridle joint is a variation of the halved joints described in the section on 'Carpentry'. Two methods of making bridle joints are shown in the illustration (*Fig. 124 (d)*). The joining pieces are trued and squared in the usual way and the joint is marked out with a mortise gauge and a try-square as described previously. The waste is dealt with by cutting through both sides of the marked joint with a tenon saw or dovetail saw and is then removed by paring with a sharp chisel, working alternately from opposite sides of the joint. The second bridle joint shown in the illustration (*Fig. 124 (d)*) is also referred to as an open mortise joint.

Tongued and Grooved Joint: The tongued and grooved joint illustrated in *Fig. 123* is a variation of the edge-tongued and grooved joint previously described and this is a useful joint for corners of cabinet carcasses. The width and position of the groove are marked with a mortise gauge, sliding the face of the stop along the end of the piece, which of course should be trued and squared. The waste of the groove is chopped out with a chisel, working alternately from each side of the groove towards the centre of the piece. The width of the groove is half the width of the pieces of wood being jointed. The tongue on the joining-board is marked out with a marking gauge and this part of the joint is made by sawing through the wood, across the grain, with a panel saw and removing the waste by paring it away with a chisel. The joint is then glued and cramped up in the usual way.

Mitred Joints: The construction of a simple mitred joint is illustrated in *Fig. 123 (b)* and this type is used mainly for securing the corners of frames. The mitres should be cut in a mitre box as previously described and the sawn end should then be shot true and square on a mitre shooting-board as illustrated in *Fig. 119*. The mitre shown in the illustration is formed to join two pieces of wood with an overall angle of 90° and the angle of the mitred corner is 45° , which is half that of the total angle. With all mitred joints the angle of the cut should be half of the total angle. The mitres may be strengthened as shown in the illustration by inserting very thin strips of wood into slots cut with a dovetail saw. The slips and the joining edges of the joint should be glued before being cramped up—for this particular job a mitre cramp is used and this tool is illustrated in *Fig. 123 (b)*. The waste of the thin slips inserted in the joint is trimmed off after the joint is set.

Fig. 123 (c) shows another variation of the mitre joint with a stronger insert than the slips of wood described for the mitre joint above; this larger strengthening piece is known as a 'false tenon'. The mitre is cut in the usual way in a mitre

box and the ends are then shot square and trued on a mitre shooting-board. The outlines of the slots cut in the mitres are marked with a mortise gauge, the sides of the slots are cut through with a dovetail saw or tenon saw and the waste is chopped out with a chisel of suitable size. A reasonable width for the false tenon is one-third of the total thickness of the wood. The false tenon must be accurately cut to fit tightly into the slots. If the tenon piece is cut too thick the joint may split when it is assembled. The joint is secured in the usual way by gluing all the meeting surfaces and cramping the joint up in a mitre cramp.

Another variation of the mitred corner joint is illustrated in *Fig. 123(d)* and this alternative is strengthened with dowels. Mitres are cut in the two joining pieces of wood in the usual way, and the ends shot square and true before marking the positions of the dowels. This is done with a marking gauge and a try-square as illustrated in *Fig. 123(d)* and the holes for the dowels are bored square with the mitred ends, the dowel pins are cut slightly shorter than the holes into which they fit and the inside dowel should be longer than that on the outside of the joint. The ends of the dowel pins are chamfered and a slot cut in the side of each pin to permit the escape of glue entrapped at the ends of the holes. The rims of the holes should be taken off with a countersink bit and the joint is secured in the usual way by gluing all the meeting surfaces, lightly malleting the parts together and finishing with a sash cramp. Frames made in this way are best assembled as two 'L'-shaped parts or some difficulty may be encountered in cramping up all the corners at the same time.

The mitre joints and the other joints described in this section should be practised on odd pieces of scrap wood before using them when making a cabinet. **Dovetail Joints:** Dovetail joints are used for securing corners of cabinet members and for making drawers, etc. Dovetail joints, if properly cut, are very secure and rigid. There are several types of dovetail joints and some are illustrated in *Fig. 126*. *Fig. 126(a)* shows a through dovetail which is made by cutting the parts of the joint right through each member joined. The joints are best marked with a dovetail template, with edges sloped to 80° as illustrated in *Fig. 126(a)*. The dovetail pins or tails should be marked and cut on one piece of wood which should then be used as a guide for marking the positions of the joints on the end of the joining piece of wood, as illustrated in *Fig. 126(a)*. The waste is removed by cutting through the marks with a dovetail saw and removing the waste with a sharp chisel.

Fig. 126(b) shows a variation of the through dovetail joint; this is a lapped dovetail which is used to hide the ends of the pins. The lapped dovetail is made in very much the same way as through dovetails, described above, except that the ends of the keys are stopped, as shown in the illustration. Another variation of the dovetail joint is illustrated in *Fig. 126(c)* which shows a secret dovetail. This is formed as the illustration shows by mitring the ends of the wood after the dovetails have been cut.

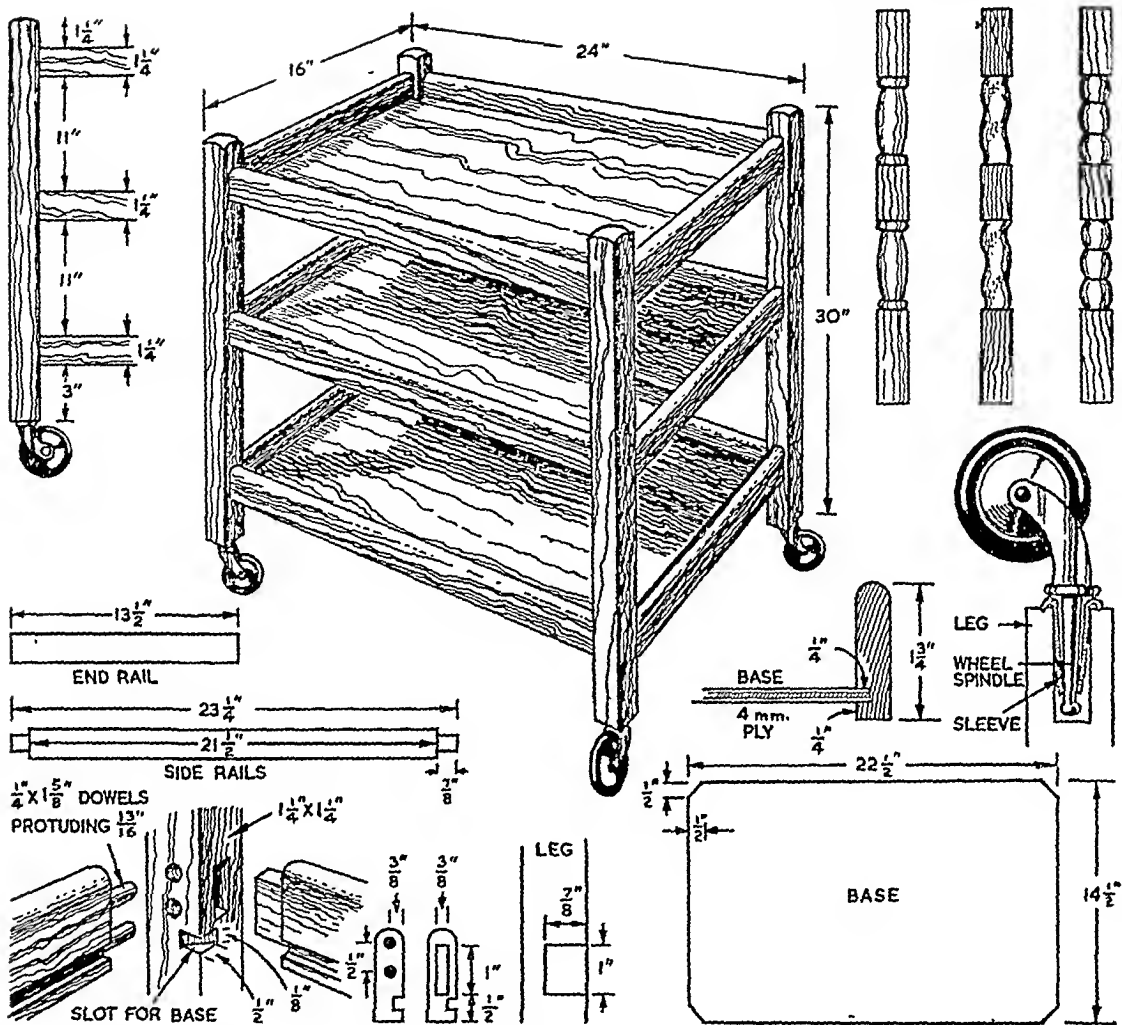


Fig. 127. Making a dinner-wagon

furniture the pieces described will include the use of the tools, materials and jointing methods described in the first part of this section; any additional tools, materials and methods of jointing to those already described will be mentioned in the instructions where they are employed.

Cutting List: Before making a piece of furniture, or before commencing any carpentry job necessitating the use of woods of different sizes and thicknesses, the handyman cabinet-maker will find it advisable to compile a cutting list. This is simply an accurate list of materials that will be required for the job. A cutting

list is essential for jobs in which hardwood is used for two reasons: one is to prevent waste by purchasing more timber than is actually required and the second reason is completely opposite, to prevent under-ordering, which although better than over-estimating may give rise to some difficulties in the case of selecting woods of sympathetic or matching grains. A cutting list is not difficult to compile.

Before the job is commenced a clear drawing of the article being made should be drawn and the dimensions of each part marked in. The pieces required should then be listed separately under their widths and thicknesses so that the completed list should show exactly what length of each thickness of the material will be required. In the case of hardwood which is purchased at per foot super the compilation of a cutting list will enable the handyman cabinet-maker to estimate the square footage required in different thicknesses. When compiling a cutting list a sensible allowance should be made for cutting to waste and an allowance should also be made for joints which prolong members, such as, in the case of mortise and tenon joints, reasonable allowance should be made for the tenons which are cut into the ends of the rails affixed to the mortised members. If sheet material is used such as plywood, the compilation of a cutting list will enable the handyman cabinet-maker to accurately estimate his exact requirements and the different sizes of the panels can be drawn to scale on a sheet of paper, to fit the standard sheet sizes available and so eliminate uneconomic wastage. It will, of course, be appreciated that although the cutting list is compiled to eliminate waste the measurements and allowances should not be too cheeseparing or this may result in waste of time in trying to get sufficient material out of that listed, also it is not entirely a bad thing to have a few odd pieces of leftover materials about the workshop.

THINGS TO MAKE

Trays: The tray illustrated in *Fig. 125* is a simple project for the beginning to cabinet-making, and the construction of this simple article, which may be varied in design, is shown in the illustration (*Fig. 125*). The tray has four rails (these are the side members), a base and two handles. Any hardwood may be used for the rails, and this project would look well in oak. The base of the tray is of plywood, which should be faced to match the rails, and plywood which is veneered on one side is obtainable from local timber merchants and handicraft wood shops. The wooden handles shown on the completed tray in the illustration can quite easily be made by the handyman. The dimensions of all the parts of the tray are given in the illustration and these may be varied to suit individual requirements. The rails at the sides are made from pieces finished to the dimensions of 2 in. wide by $\frac{1}{2}$ in. thick. It is not necessary to plane and true the four pieces separately; the rails may be cut from one length of material finished to the required size. The top of the rails are rounded over with a small block-plane, or a smoothing-plane,

and some alternative edge shapes for the side rails of the tray are given in the illustration, which also shows how the corners are jointed.

The mitred corner joints are cut in a mitre-box with a dovetail saw or with a tenon saw, then shot true on a mitre shooting-box. Each corner is notched after assembly for the insertion of three strengthening slips of thin wood, as shown in *Fig. 126*. Before assembling the sides of the tray a groove is cut to take the edges of the base. The plywood specified is 4 mm. in thickness and this is slightly more than $\frac{1}{8}$ in. The groove is cut with a plough fitted with a blade $\frac{1}{2}$ in. wide and the groove is inset from the bottom edge of the members by $\frac{1}{4}$ in. The depth of the groove is also $\frac{1}{4}$ in. The groove may be ploughed in the complete rail strip before cutting the sides to length. The plywood base is cut to the size of the dimensions given in the illustration, and these allow for the edges of the base which are fitted into the grooves in the sides. It will be found that the 4-mm. plywood will be slightly thicker than the $\frac{1}{8}$ -in. wide groove, and to overcome this the bottom edges of the base of the tray should be thinned by rubbing them with glass-paper folded over a wooden block. The parts should be put together and tested for fit before gluing them. While the parts are assembled for the test fit, the notches should be cut in the corners for insertion of the thin strengthening slips. With this done, all the parts should be rubbed smooth with grade medium-one glass-paper, using the glass-paper with the grain—which is the longest way of the wood. With the parts sanded the tray may be assembled and this is a project for which a synthetic-resin glue may be used. The adhesive consists of the resin and a separate container of hardener. The liquid resin is brushed on one of the meeting surfaces and the hardener is brushed on the opposite part of the joint. With this done the tray should be assembled and the strengthening slips glued and inserted in the corners. With synthetic-resin glues it is only necessary to hold the parts together under light pressure and for this particular job a tourniquet can be made of stout cord or copper wire looped right round the outside of the tray and tightened with a stick; insert waste pieces of wood under the cord or wire at the corner of the tray to prevent bruising the edges. Make sure that all the corner joints fit together snugly before finally tightening the tourniquet and wipe off all excess glue exuding from the joints before putting the piece aside to dry. The setting time of synthetic-resin glues may vary between different manufacturers, but most of these modern adhesives set hard in 30 minutes—setting times are given on container labels.

The handles may be made while the glue is setting. Those shown in the completed tray in *Fig. 125* are simply 4-in. sections cut from the same type of wood as used for the rails of the tray, which has been rounded and cleaned down to a diameter of 1 in. The groove in the underside of the handles may be cut with a plough or the edges of the grooves may be run through with a tenon saw and the waste eased out with a $\frac{1}{2}$ -in. chisel. The ends of the handles may be left square or rounded over and this may be done with a wood rasp finishing with

glass-paper. The position of the handles is marked on the centre of the side members of the tray and a small piece of the rounded top, equal to the length of the handles, is flattened with a chisel to enable the groove parts of the handles to fit snugly over the sides. With this done the handles should be rubbed down with grade one glass-paper, glued in the same way as the rest of the tray and placed in position. With the handles in position, turn the tray upside-down and place under a weighty object. Any excess glue should be wiped off before it has a chance to harden. As soon as the handles have set—about 30 minutes for most synthetic adhesives—the tray should again be lightly rubbed down, this time with grade-o glass-paper, when it is then ready for finishing.

The tray and other articles described in this section may be finished in one of several different ways, and methods of wood finishing are given at the end of this section.

The illustration (*Fig. 125*) shows how the design of trays may be varied to suit the individual, by using shaped pieces of wood (picture framing) for the sides, and further variety may be added by the fitment of handles of different shapes, some of which are shown in the illustration. If the tray is made from picture-frame moulding it will not be necessary to plough a groove in the sides of the rails and the tray base may be fitted into the rebate already worked in the frame moulding. If the tray, when in use, is to be placed often on a polished surface it will be advisable to face the underside of the edges of the tray. This may be done by gluing strips of felt to the bottom of the edges of the rails using a fabric adhesive to secure the felt to the wood.

Dinner-wagon: The useful three-tier dinner-wagon or tea-trolley illustrated in *Fig. 127* is in some ways similar in construction to the trays previously described, in that the bases of each shelf or tray of the wagon fit into grooves cut into the side rails. In fact, the dinner-wagon is a series of trays affixed to corner posts which are mounted on wheels. The legs or posts may be made by the handyman cabinet-maker, or ready-made legs with turned shapings may be obtained from local timber merchants and woodwork stores. The dinner-wagon would look well in oak or made with oak posts and rails with walnut or any other contrasting wood used to face the plywood used for the bases of the shelves.

The dimensions of this useful piece of furniture are given in the illustration (*Fig. 127*); the base of the trays is 4-mm. ply, faced with a thin veneer of oak, or any other wood to the preference of the handyman, and the plywood may be obtained from any good timber merchant already faced. The wheels on which the dinner-wagon is mounted are rubber-tyred metal wheels with a diameter of 3 in. The dimensions given in the illustration are finished sizes and the handyman cabinet-maker should make some allowance for trimming when compiling a cutting list.

The 1½-in. square corner posts should be made first and the tops rounded over. It will be seen from the detailed drawings (*Fig. 127*) that a mortise and

tenon joint is used for securing one rail to the posts, with a dowel joint securing the right-angled adjoining rails. The mortise and tenon joints are used for the six rails at the *sides* of the dinner-wagon, and the dowel joints are fitted to the rails at the *ends* of the wagon. The rails should be made and grooved as shown in the illustration to take 4-mm. plywood. 4-mm. ply is slightly wider than $\frac{1}{8}$ in., but the grooves cut in the rails may be made with a $\frac{1}{8}$ -in. blade in the plough used for the job. The depths of the grooves is $\frac{1}{4}$ in. inset from the inside of the rails, and the edges of each groove are made to allow $\frac{1}{4}$ in. under the base (*Fig. 127*). The six side rails should be made first, finishing each piece smoothly and cutting neat and accurate tenon joints as shown in the illustration. The top edge is best rounded over with a block plane, finishing with a smoothing-plane and glass-paper.

After making the long rails for the sides of the dinner-wagon the corner posts should be jointed by cutting the mortises into which the tenon joints will fit. The dowel holes should not be drilled at this stage but a diagonal slot to take the corner of the base of each tray should be cut in the inside corner of the posts as shown in the illustration. With the six side rails and the four posts jointed to make the side rails, the two sides of the trolley may be assembled. A synthetic-resin adhesive may be used for securing the ends of the rails into the posts; each side should be lightly cramped up, and any surplus glue which exudes from the joints wiped off before it has a chance to harden.

Before laying the parts aside for the adhesive to harden, the rails and posts should be tested for squareness. This is done by placing a try-square in the angle formed by the joining members; there should be no wedge-shaped gaps between the members and the handle or blade of the square. While the glue is setting the six rails for the ends may be cut to shape, and the holes for the dowel pegs drilled in the ends of the rails, in the positions shown in *Fig. 127*, also the base grooves cut. The three base pieces can be cut to size at this stage; dimensions are given in *Fig. 127*, and each corner of each one of the tray bases should be cut off as shown in the illustration, to notch neatly into the slanting grooves cut in the corner posts. As 4-mm. plywood is slightly thicker than the $\frac{1}{8}$ -in. grooves it will be necessary to thin the edges of each plywood base on the underside and this may be done by vigorous rubbing with grade middle-two glass-paper folded over a block of wood. The end rails and the three bases should be smoothed down before completing the assembly. In all cabinet-making projects the handyman will find it best to smooth the parts down before assembling them.

After the cement has hardened and the sides of the trolley are firmly secured the dowel holes to take the pins should be bored in the posts, and this must be done carefully so that the positions of the side rails coincide exactly with the end rails. Test the pieces for fitting before final assembly. With this done the joints should be coated with synthetic-resin cement and one end of the trolley fitted to the two sides. At this stage the three bases should be slid into the grooves before assembling and cementing the opposite end of the trolley. The rails and

legs should be tested for squareness before cramping up and setting the job on one side for the cement to harden.

The last stage in making the dinner-wagon consists of fixing the wheels. To do this the wagon is turned upside-down and holes drilled in the ends of the legs to take the sleeves into which the wheel spindles are inserted. The sleeves have a saw-tooth edge under the rim of the top as shown in the illustration (*Fig. 127*). They are fitted to the end of the leg by inserting the tapered ends of the metal sleeves in the drilled holes, which should be $\frac{1}{2}$ in. deeper than the length of the sleeve, and hammering the top rim of the sleeve to sink the teeth firmly in the end grain of the legs. The wheel spindle which fits into the sleeve is pushed firmly into the sleeve with hand pressure and when in the correct position the shaped end of the spindle will click into place as it slides over the end of the sleeve.

To complete the dinner-wagon, clean down with grade-o glass-paper and finish according to individual taste. Instructions for finishing furniture are given at the end of this section.

Needlework Stool: This attractive piece of furniture which is illustrated in *Fig. 128* has a dual purpose. It is used as a foot-stool and also serves to house odds and ends of mending and needlework materials in the box under the hinged seat. The hinged top of the stool is upholstered and the method of upholstering this type of seat is fully dealt with in the following section on 'Upholstery'. An interesting feature of the needlework box is the tray for reels of cotton, darning threads, packets of needles, etc., which slides along on a runner fitted to the inside of the top rails. The tray is made half the length of the inside of the box so that it may be slid along to provide easy access to the contents of the stool; also this tray may be lifted out. Full details of construction are given in *Fig. 128* which also includes dimensions of all the parts. These dimensions are finished sizes which simply means that the wood used should be trimmed to the exact sizes given in the illustration, which gives no allowance for trimming waste, and this fact should be taken into consideration when compiling a cutting list.

The 12-in. legs of $1\frac{1}{8}$ -in. square timber should be trimmed and made first; these should be of oak with contrasting panels of another wood or the whole job may be done with oak. After finishing the legs, which may be trimmed in one length before cutting them to size, one of the corners should be rounded over as shown in the illustration. The four legs should each be grooved on two sides as shown in *Fig. 128* to take 5-mm. plywood used to make the sides of the box. 5-mm. plywood is slightly less than $\frac{3}{16}$ in., but a $\frac{3}{16}$ -in. blade should be used in the plough to cut the grooves. The 10-in. long grooves are set $\frac{3}{16}$ in. in from the outside edges of the legs and the depth of the groove should be also $\frac{3}{16}$ in. All the eight rails—that is four for the two ends and four for the sides—are made of $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. finished timber. When cutting the rails to length an allowance should be made each end for the mitred tenons which are used to secure the ends of the rails into the posts as shown in the illustration (*Fig. 128*). The four lowest rails

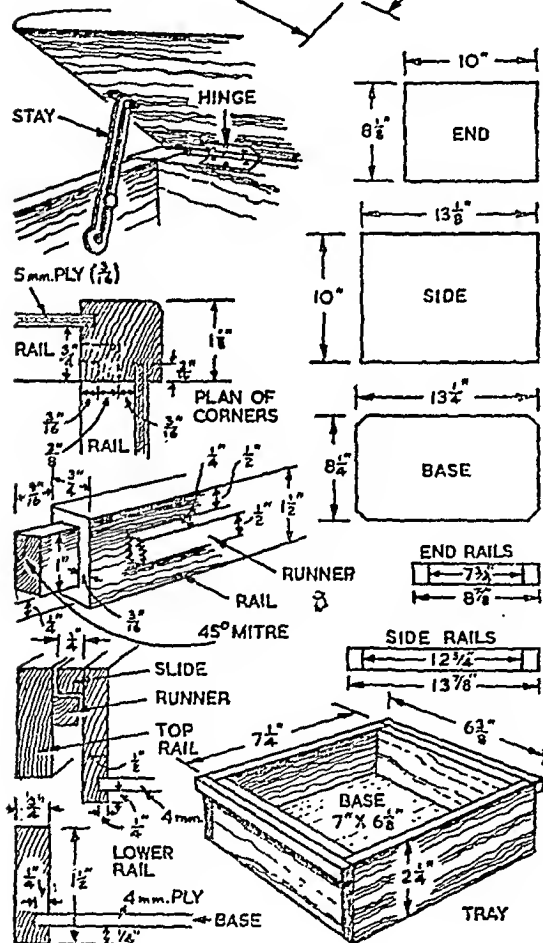
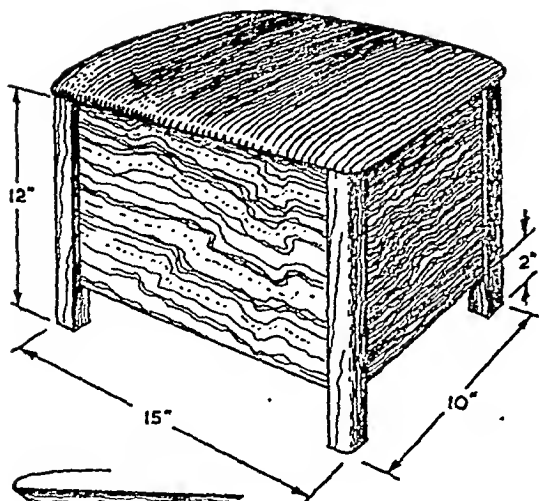


Fig. 128. Needlework stool

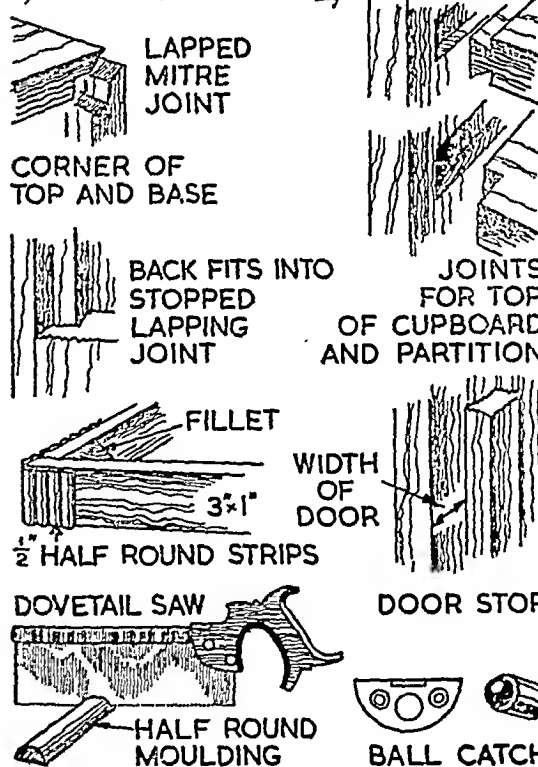
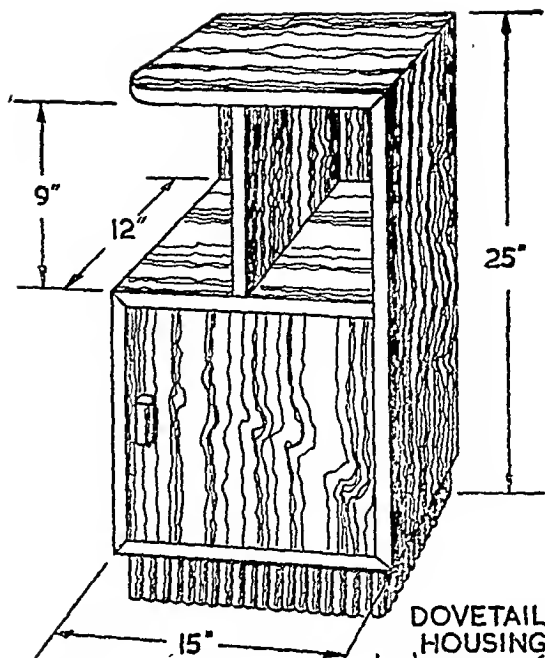


Fig. 129. Bedside Cabinet

are grooved to take the 4-mm. plywood base. The grooving is done with a $\frac{1}{8}$ -in. blade fitted into a plough, and the position and depth of the grooves are shown in *Fig. 128*. All the rails should be carefully jointed then the mortises cut into the legs. The tongues of the tenons are $\frac{3}{8}$ in. wide and $\frac{9}{16}$ in. on the longest side of the mitred tenons. The tongues are cut with a tenon or dovetail saw and the mortises should be chopped out with a $\frac{3}{8}$ -in. wide chisel. Some of the waste may be removed with a brace and bit. The position of the mortises on the legs should be marked with a mortise gauge, the ends of the mortises being accurately marked with a try-square and pencil.

The top rails inside the box are fitted with a $\frac{1}{2}$ in. by $\frac{1}{4}$ in. runner which supports the slides fitted to the sides of the tray. The runners should be glued and screwed inside both rails which support the sides of the stool. It is not necessary to attach runners to the end rails at the top of the stool. The dimensions of the sides, ends and the base of the stool are shown in the illustration (*Fig. 128*). The corners of the base should be cut away and slanting grooves made in the inside of the legs to take the corners, in the same way as the tray bases fit into the posts of the dinner-wagon, previously described.

With all the pieces of the stool cut to size and the joints made, each part should be rubbed smooth and the pieces assembled to check the accuracy of jointing, before gluing up. A synthetic-resin adhesive may be used for fixing the parts together.

The sides are assembled first; to do this, one end each of the top and lower rails should be coated with adhesive and the tenons firmly inserted into the mortises of one leg. With this done, the meeting surfaces of a 5-mm. faced plywood side should be treated with the synthetic-resin cement and malleted firmly into position before gluing and attaching the remaining leg. Both sides are assembled in the same way. Before cramping up, test for squareness and remember to wipe off any excess glue exuding from the joints. As soon as the adhesive used for joining the sides of the stool has hardened, the end rails and plywood ends should be treated with the resin cement, inserted and cramped up, remembering to test for squareness before leaving the job. The base should be inserted at the same time as the ends are fitted.

The tray is made as shown in *Fig. 128*. The sides of the tray are grooved to take a 4-mm. plywood base which need not be of faced wood. The corners of the sides of the tray are best mitred as explained previously for making a tea-tray. The slides of $\frac{1}{2}$ in. by $\frac{1}{4}$ in. slips are glued and screwed to the short sides of the tray as shown in the illustration. All the parts of the cotton tray should be rubbed smooth before assembling them.

The top of the needlework stool is dealt with last of all. The top is made on a base of 9-mm. plywood, which is cut *slightly* smaller all round than the stool to allow for the thickness of the upholstery covering. The top is best upholstered before securing it to the stool, but it will be found advisable to fit the hinges to

the inside of the top before doing the upholstery. The screws holding one side of the hinge may then be removed when the upholstering is done—upholstering is fully explained in the following section. When fitting hinges to the top of the stool and the side rails at the back of the stool it should be appreciated that the hinges must overhang the sides by $\frac{3}{16}$ in. This is to allow for the part of the leg protruding from the side of the stool so that the hinged edge of the top does not bind against the legs when the stool is opened. $1\frac{1}{2}$ -in. long brass butt hinges will be found suitable for hingeing the top of the needlework box. Full instructions for fitting hinges are given on page 157. The drawing of the inside of the lid of the box in *Fig. 128* shows that the seat should be secured to the inside of the box with a lid-stay as shown in the drawing. Alternatively, the opening of the lid may be restricted by fitting a length of chain. The inside lid may be left bare or it may be fitted with pockets and loops to hold scissors, packets of needles, etc.

Instructions for finishing are given at the end of this section.

A Bedside Cabinet: An illustration of this useful piece of furniture is given in *Fig. 129*. All-over dimensions are included in the illustration; the detailed dimensions are not included as this is a piece of furniture that should be tailored to suit the size of the bed against which it is going to be used. It should be made so that the lower shelf of the top compartment is on a level with the made-up bed. If two cabinets are being made, for use on each side of a bed, the shaped top and long side should be reversed on one of them to make a pair of cabinets. The cabinets may be made in any hardwood to suit the existing style of decoration in a bedroom. Faced blockboard may be used or veneered plywood of any substantial thickness, say $12\frac{1}{2}$ mm., which is approximately equal to $\frac{1}{2}$ in. Each bedside cabinet is composed of a long side, a short side, a top, top shelf, and base, also a division to help support the top of the cabinet and to partition a part of the open space for books. A narrow shelf is fitted inside the cupboard part of the cabinet and the carcass is mounted on a plinth which is slightly recessed under the base.

Before compiling a cutting list the handyman cabinet-maker should make a drawing of the exact size of the cabinet, or cabinets, required to suitable dimensions. As an alternative to the use of plywood or hardboard, solid hardwood may be used and narrow pieces may be edge-jointed as explained earlier in this section to make wide pieces. If veneered plywood is used it will be necessary to give the visible edges of the ply special treatment to cover them. This may be done by cementing narrow strips of thin veneer to the visible edges after the parts have been cut to shape, jointed and finished to the stage of assembly. Thin veneers are obtainable in a good variety of wood colourings and grains and it should not be too difficult to match up the grain and colouring of the main pieces. The strips of veneer are best secured to the edges of the ply with a synthetic-resin cement and the edges of the veneer should be carefully rubbed flush with the surfaces of the plywood with fine glass-paper after the cement has hardened.

The top and base of the cupboard, also the open end of the shelf, may be jointed as shown in the illustration, with a lapped mitre joint, and the edges should be worked carefully to ensure accurate jointing. One excellent feature of synthetic-resin cements is that they are gap-filling, which simply means that if the joint is not accurately cut and there are some spaces between the meeting surfaces, the resin cement will fill these spaces as well as securing adhesion. Despite this, however, every care should be taken when cutting the joints. Both ends of the partition in the open top of the cabinet, the closed end of the top shelf and the ends of the inside shelves are best jointed with a stopped housing joint as shown in the illustration (*Fig. 129*). The squared housing joint may be given extra strength by dovetailing the ends of the members and dovetailing the groove into which they fit, as shown in the illustration.

The back of the cabinet fits into a stopped lapping joint as illustrated in *Fig. 129*. The back of the inside shelf and the top shelf of the cabinet may be cut short and simply attached to the back by means of screws. The plinth suggested in the illustration should be made of 3 in. by 1 in. softwood with the corners supported by a triangular fillet, glued and screwed in place as shown in the illustration. The corner joints of the members of the plinth are simply lapped. The softwood plinth which is glued and screwed to the underside of the cabinet is faced with strips of $\frac{1}{2}$ -in. half-round moulding of a hardwood to match that used for the main part of the cabinet; the strips of moulding are cut to length with a dovetail saw and glued to the foundation of the plinth (*Fig. 129*). As an alternative, strips of hardwood may be fitted horizontally instead of vertically, but if this is done it will be necessary to mitre the corners of the strips of moulding. The plinth should be slightly recessed under the main part of the cabinet, except the back, and allowance should be made for this. A reasonable amount for recession from the face of the moulding to the edges of the cabinet would be $\frac{1}{8}$ in. to $\frac{3}{8}$ in. It is not necessary to face the back member of the plinth with moulding.

The door may be made of faced plywood or blockboard with the visible edges covered with thin sheets of veneer as explained above. The door is hinged to the long side of the cabinet and the method of hinging cabinet doors is described on pages 157—159. The door-handle is suggested as being cut from a handle moulding of the types previously described. A ball catch as illustrated in *Fig. 129* would be suitable for this type of door or the cabinet door may be fitted with a magnetic catch as previously described. The side of the cupboard into which the door closes should be fitted with a stop consisting of a thin strip of wood glued inside the cabinet to leave a space equal to the width of the door (see *Fig. 129*). All the parts should be cut to shape and smoothed down with glass-paper before assembling.

After cleaning down for assembly unfaced edges of plywood should be faced with veneer as explained above. With this done, the parts are assembled in the usual way, using a synthetic-resin glue. Any surplus glue should be carefully wiped off before it hardens.

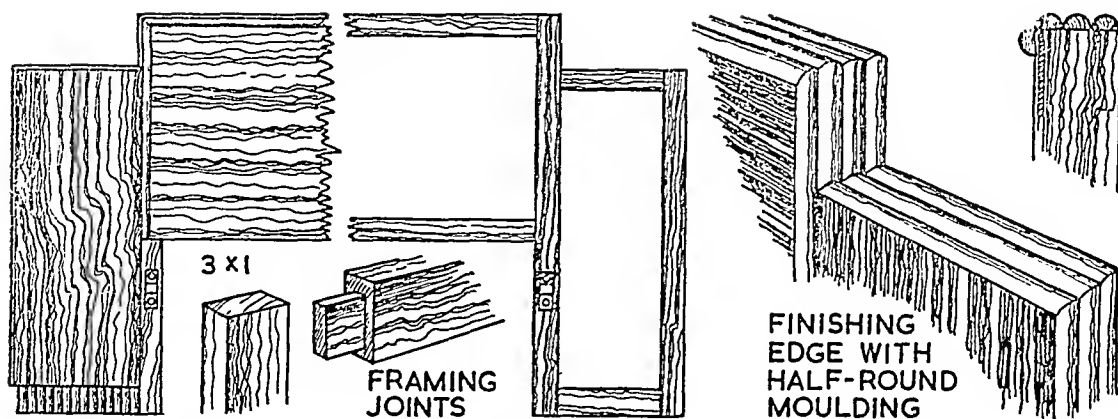


Fig. 130. Fitted bed-head

This type of bedside cabinet makes an excellent accessory to go with the fitted bed-head next described.

Fitted Bed-head: This modern piece of bedroom furniture, which is illustrated in *Fig. 130*, may be made as an entire piece to replace an existing bed-head or, if the present bed-head is modern in style and in good condition, it may simply be extended by the addition of the wings shown in *Fig. 130*. This type of bed-head may also be constructed successfully to modernise a bedstead with iron ends. The construction of this attractive bedroom accessory is quite simple, the bed-head, either complete, or wings, consisting of a framework of 3 in. by 1½ in. hardwood covered on the front side with faced 3-mm. plywood. Detailed dimensions are not given in the illustration as this type of fitment should be tailored to the bed on which it is to be used. The illustration shows how the corners of posts extend below the panelled section of the framework and if the complete bed-head is made to replace the existing one, it will be necessary to attach the bed-rail brackets to the posts, as shown in the illustration. The frame-work of the bed-head or the separate wings is jointed with mortise and tenon joints as illustrated (*Fig. 130*), and the joints may further be strengthened by the addition of draw dowels, the use of which has been dealt with previously in this section.

The drawing (*Fig. 130*) suggests that the bottom edges of the wings of the bed-head may be decorated by picking up the half-round, strip-moulding treatment of the plinth of the bedside cabinets described above. Half-round moulding may also be used successfully to cover and decorate the edges of the panel and framework as illustrated in *Fig. 130*. Care should be taken to cut the joints accurately and assemble the parts strongly with synthetic-resin glue as this is a piece of furniture which has to stand up to a great deal of stress and strain. The bedside cabinets described above may be incorporated in the wings of the bed-head or

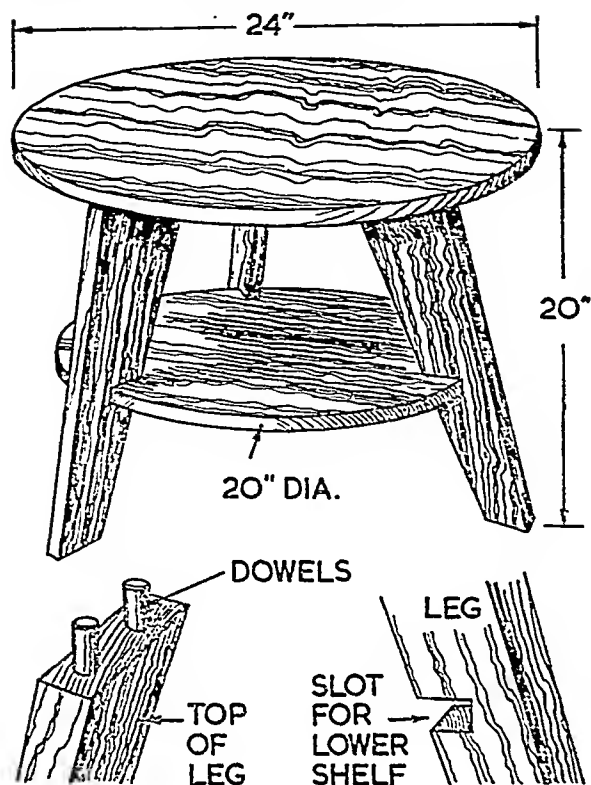


Fig. 131. Coffee-table

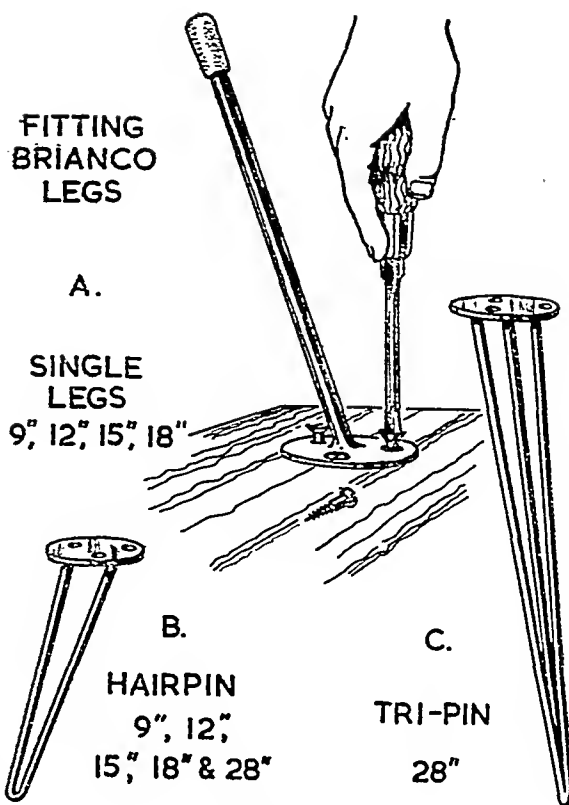


Fig. 132.

they may be used separately as detached units. All the parts should be rubbed smooth before assembly and the pieces finished to the user's taste, as described in the instructions on wood finishing at the end of this section.

Coffee-table: The coffee-table illustrated in Fig. 131 is an extremely simple one to make, consisting of only five pieces, which are the top, lower tray and three uprights which also form the legs. Dimensions of the parts are given in the illustration (Fig. 131), which also shows the simple method of construction which is done by notching the lower tray to fit into the uprights. The top is secured to the uprights by short dowel pins and the parts are glued together. This simple piece of furniture may be made entirely from faced plywood.

Occasional Tables and Contemporary Furniture: The modern handyman cabinet-maker may be interested in constructing coffee-tables and other light furniture in contemporary style; this may simply be done by attaching manufactured, wrought-iron legs to suitable shaped tops. Some information about wrought-iron legs of the 'Brianco' type is given in Fig. 132. All the metal legs are made with screw plates welded to the top, and the plates are drilled for screws. Assembly,

THINGS TO MAKE

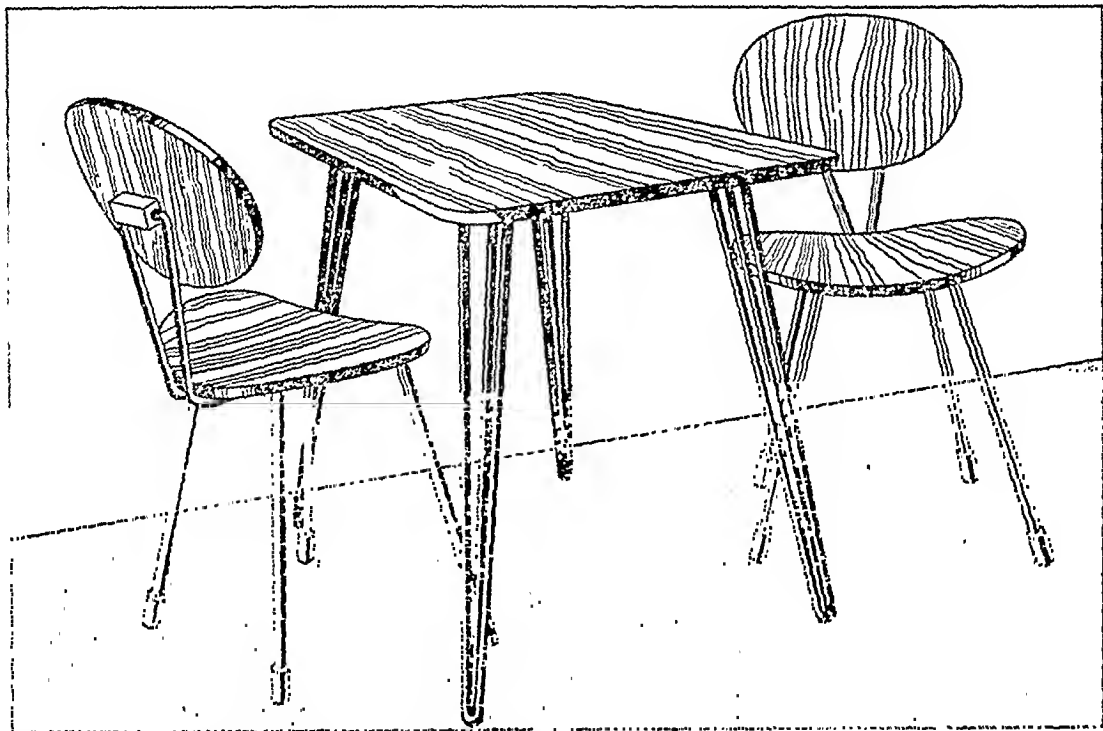
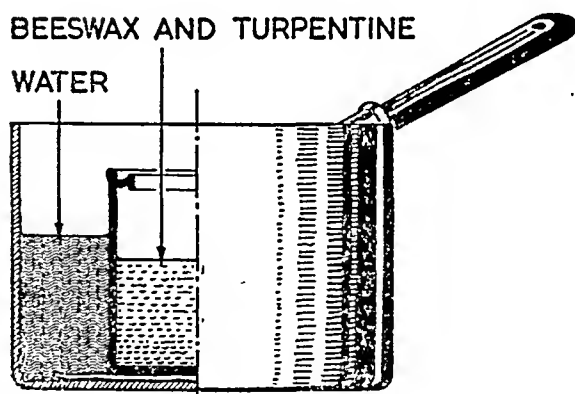
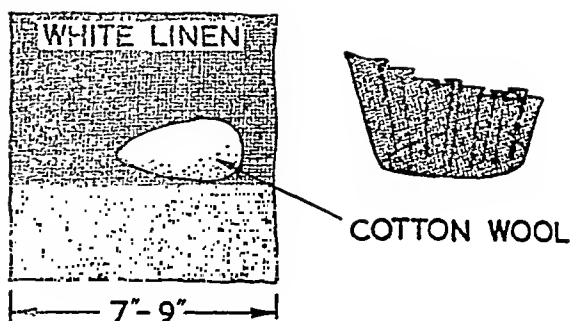
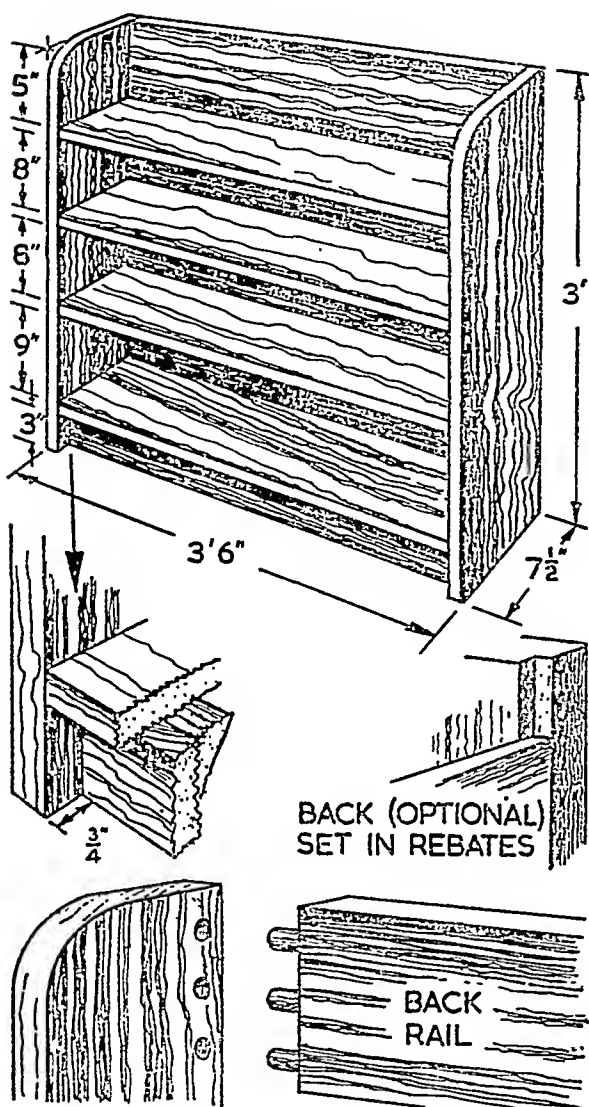


Fig. 133. Examples of screw-on 'Brianco' legs attached to chairs (single legs) and a table (tri-pin legs)

therefore, is an extremely easy matter, the legs simply being attached to the underside of the piece of wood prepared for the top of the table, etc. The length of the screw used should be equal to not more than three-quarters of the thickness of the wood, *plus* the thickness of the screw plates. The 'Brianco' type wrought-iron legs, which are illustrated in *Fig. 132(a)*, are made as single legs in lengths of 9 in., 12 in. and 18 in., and the single legs are fitted with rubber tips. *Fig. 132(b)* shows 'Brianco' hairpin-type legs with two supports secured to screw plates, and this type is available in lengths of 9 in., 12 in., 18 in. and 28 in. *Fig. 132(c)* shows the tri-pin type leg which is available in a length of 28 in. Sensible use of these legs should be made in relation to the size and purpose of the table being made. The single legs are suitable for most light tables and for stools. Where the area of table-top is less than 4 sq. ft. and is to be fitted with 28-in. legs it will be found best to use the hairpin type. When the area of the table-top exceeds 4 sq. ft. it will be advisable to use legs of the tri-pin type. Brianco-type wrought-iron legs may also be used to support some types of small cabinets, such as light bookcases. **Bookcases:** Bookcases can be made by the handyman cabinet-maker in a very



wide variety of shapes and styles. The bookcase illustrated in *Fig. 134* has a simple classic style. Overall dimensions are given and these may be varied to fit a particular space and may contain more or less shelves according to the maker's requirements. The construction of the type of bookcase illustrated is extremely simple and this piece is best made of solid timber, although laminatives could be used. The back, which is optional, is faced plywood of course. The four shelves of the bookcase fit into stopped housing joints cut into the sides. The thickness of all the wood throughout the bookcase is $\frac{3}{4}$ in. except the back. The top rail at the

back is secured to the sides with dowel pins and is also secured by screws inserted through the underside of the top shelf at the back. The plinth or base is set back by about $\frac{3}{4}$ in. from the face of the bookcase and details of the base, which is secured with dowels and triangular fillets, is given in the illustration. If a back is fitted, this is best set into rebates cut into the back edges of the sides of the bookcase. If the case is backed the centre shelves should be slightly narrower than the top and bottom shelf to allow for the thickness of the back. All the parts should be well cleaned off before assembling them in the usual way.

The information given in this section is sufficient to give the handyman a basis of knowledge on which to progress in the craft of cabinet-making. Obviously it is not possible in the space to cover every branch of this interesting and expert craft, but the handyman with average ability should be able to make good progress after completing the work explained above.

WOOD FINISHING

The descriptions of wood finishing described below are applicable to the articles of furniture described previously in this section and they may also be applied to other articles of woodwork. It may be preferred to make some things of softwood and finish them with enamel or paint. Instructions for painting and enamelling are given in the section 'Interior Decorating'.

Most articles of woodwork are finished by polishing them, and the methods of polishing wooden furniture may be divided under three main headings, descriptive of the processes involved. The methods of polishing woodwork are *oil polishing*, *french polishing* and *wax polishing*. Any of these three finishes may be applied to the natural wood or the wood may be stained before polishing. The work of polishing, whatever the process, may be broken down into stages consisting of colouring (by the use of a wood dye or stain if it is considered necessary to finish with a darker colour than the original wood). After the wood is coloured it is filled and this process consists of sealing the irregularities caused by the formation of the wood grain. The polish, the last of the three stages of work, is applied after the surface of the wood has been filled. Of the three main methods of polishing described in this section the handyman cabinet-maker will find that oil polishing is much easier to do than french polishing which does require quite a lot of practice before proficiency can be attained. However, french polishing is not beyond the scope of the average handyman and like any other job it can be self-taught with practice on odd pieces of workshop scrap.

Polishing with Oil: The first stage in polishing with oil is to prepare the wood by filling the grain. This may be done with a patent paste filler obtainable in carton form from local hardware stores, etc., or the handyman may prefer to use a powder plaster filler. The type of powder used may be plaster of paris, or any of the patent plaster powders, normally used for filling cracks and holes in walls,

may be used instead, and as these are slower drying than plaster of paris the handyman cabinet-maker will find their use more easy. The filler is applied after the wood has been rubbed down and after it has been stained, unless this process is eliminated. If the wood is stained it is necessary to rub down again with grade-o glass-paper before applying the filler and, of course, the glass-paper should always be used the longest way of the work—with the grain of the wood. The powder fillers are used in the same way. A small amount of powder is tipped from the carton into an old saucer or a tin lid with deep sides. The plaster powder is dampened before applying it to the wood and the dampening agent is a stain of the same colour as the piece of wood under treatment. If the wood has not been stained linseed oil may be used to dampen the powder instead of wood stain. The dampening agent is poured into a second saucer or tin lid and the method of application is as follows:

A piece of coarsely woven cloth should be folded to form a pad of convenient size; this is then dipped into the stain or oil, then the dampened pad is dipped into dry powder and the loaded cloth is then rubbed into the wood. The object of filling is to close the pores of the wood and any irregularities on the surface due to the grain formation, and the loaded pad is best used across the grain. It is not necessary to press too heavily on the pad but keep the pad working until all the powder is used up. Continue recharging the pad and cover the surface first with small movements across the grain, then with circular movements, and treat only a small area of the work at a time. The setting time of the filler may vary according to the type used, but after rubbing for a few minutes it will be found that the filler commences to stiffen. When this condition is set up, change the powder pad to a dry pad of coarsely woven material and wipe off the surface across the grain. Any thick encrustations of powder on the corners and on the edges of fine moulding should be cleaned out with a sharp stick. With all the surface filled for polishing, put the object aside and leave it overnight for the filler to harden.

The next treatment consists of wiping over the surface again with a piece of coarse rag folded to form a pad and this time the pad should be dipped in linseed oil and worked lightly over the surface; this action forms a slurry of the powder on the surface of the wood and completes the job of sealing. With this done the work is again put on one side to dry. After the work is dry it should be lightly rubbed down with a piece of worn grade-o glass-paper to remove any filler on the surface of the wood and before polishing the piece should be dusted with a soft brush to remove all loose particles of filling.

Oil polishing is very easy to do but it does take much longer than the other methods described, although the surface produced is well worth the additional trouble. The polish is applied several times until a fine sheen has been worked up and this type of job is best done at intervals over a period of days, continuing the process until the finished polish is satisfactory. The oil used for this type of finish is raw linseed oil, which is applied with a soft cloth that should have a firm

surface. Use of cloths with loose particles should be avoided. The oil polishing simply consists of rubbing linseed oil well into the wood and varying the directions of the movements of the pad to cover all the surfaces with the same amount of oil. It is advisable to carry out three or four rubbings at one session, then leave the work until the next day before continuing polishing in the same way, and it will be necessary to apply a good number of rubbings with oil before the polish is

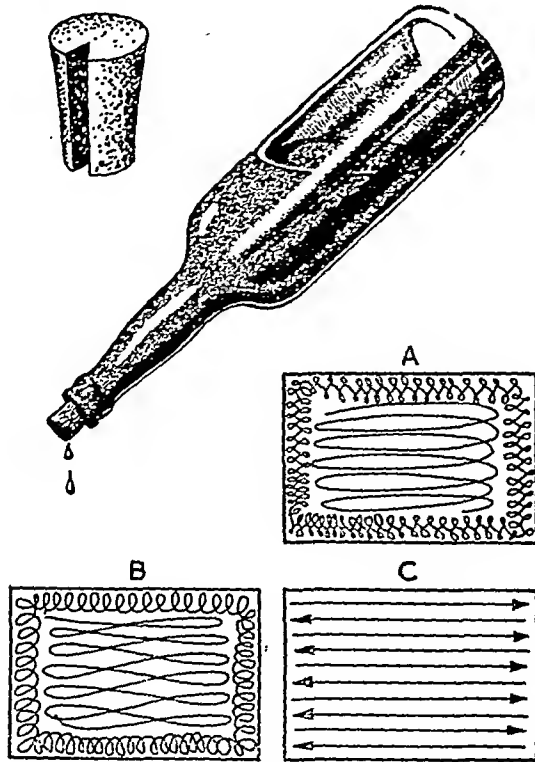


Fig. 137.

worked up. The oil polish may be given a brighter shine by burnishing it with a soft brush—a clean shoe-brush is ideal for this job—and the brush should be vigorously applied over the entire surface. After brushing the work should again be rubbed with oil and the process continued until the required result has been obtained. A great advantage of oil polishing is that the finish is easy to revive when it becomes dulled and marked in use.

French Polishing: This method of finishing furniture has been a popular one for many years; the job of french polishing does require some practice before complete

proficiency can be gained and this may be done by polishing odd scraps of workshop waste. The cabinet-maker who wishes to become proficient at french polishing should commence by dealing with small articles before attempting to polish large pieces of furniture.

The preparation for french polishing is exactly the same as that described above for oil polishing. The work should be filled after it has been stained—or the staining process may be omitted to suit the individual. After filling, the job is rubbed down with grade-o glass-paper before commencing the polishing, which is done in three stages of work—these stages are known as ‘fadding’, ‘bodying’ and ‘spiriting off’. There are several qualities of french polish which are used for different purposes and all the kinds of polish are solutions of shellac dissolved in methylated spirit. French polishes may be obtained prepared ready for use. Those most suitable for handyman application are illustrated below:

Garnet Polish: Garnet polish is a dark brown in colour and it has a slight greenish tinge. It is used on dark woods or it may be used on light woods if it is necessary to finish with a darker colour than the natural one of the wood.

Button Polish: This is slightly lighter than Garnet polish and is a golden brown in colour. It is used on woods of medium colours.

Orange Polish: Orange polish is used to finish woods of light colours and the polish itself is a pale yellow.

White Polish: White polish is used on very pale woods where it is not necessary to darken the colours. White polish is almost colourless.

The colouring properties of any of the polishes described may be ascertained by rubbing a small amount of the polish on a piece of wood of the colour of the piece being treated.

The best method of storing french polish is to keep it in a bottle. The bottle should be fitted with a cork and the cork is not removed to extract polish from the bottle, instead a V-shaped groove is cut into the side of the cork as illustrated in *Fig. 137* so that only a light flow of polish is obtained when the bottle is tipped up. The surface of the work should be well dusted before commencing the first stage of polishing and it is advisable with all stages of polishing to place the work near a window so that the progress of the polishing may be seen by reflected light on the surface of the wood. French polishing should not be carried out in a cold or draughty room, it is best done in a warm room in which no falling dust is present to mar the polished surface. Falling dust will become embedded in the soft polish as it is applied and will harden to form ugly pimples.

The first stage of polishing is ‘fadding’ and this is descriptive of the application of the french polish with a pad which is also described as a ‘fad’. The fad is of unbleached wadding which is simply kneaded with the fingers into a pear-shaped pad. Fadding is commenced by pouring a small amount of polish on the pad of wadding and care should be taken not to overcharge the pad. The pad is overcharged if, when it is squeezed, polish drips from it. The pad, charged with

polish, is worked over the surface of the wood with clean strokes in the direction of the grain, working the fad backwards and forwards. Care should be taken not to overlap the edges with the strokes or this may build up a greater thickness of polish at the edges which will appear as ridges in the finished job. The first coats of polish applied dry very quickly and after completely coating the surface of the work it should be rubbed down with grade-o glass-paper and dusted before the next fadding, which is done in exactly the same way as the first one. The fadding applications are repeated three or four times and the work is rubbed down and dusted between each application of polish. It only takes a few minutes to dry. The fadding process is continued by lubricating the fad and for work of dark and medium colours linseed oil should be used; for work of light colours the lubricant is white mineral oil. The fad is charged in the usual way with polish and the oil is scattered on the surface of the work; only a *very small* amount of oil should be used at one time. With drops of oil scattered on the surface the fad should be worked in circular movements as illustrated in *Fig. 137 (a)* which shows how the edges of the surfaces being treated are worked with small figure-of-eight movements. As the fad becomes dry and the oil is used up, the fad should be freshly charged and more oil scattered on the surface.

After two or three applications with polish and oil the movements of the fad should be changed, as illustrated in *Fig. 137 (b)*, to form large figures-of-eight over the main part of the surface, finishing the edges and corners with small circular movements as shown in the drawing. When a sufficient thickness of polish has been built up, this may be seen by viewing the work towards the light, when there should be no irregularities visible on the surface. The work is left to harden; this takes only a few minutes, and the surface is then lightly rubbed down with a piece of *worn* grade-o or grade-oo glass-paper, finishing by dusting with a soft brush to remove all sanding dust.

After the fadding has been completed the layer of polish is thickened by the next process which is 'bodying'. In this part of the work the fad is changed for a 'rubber'. The method of shaping the rubber is illustrated in *Fig. 135*. The rubber consists of unbleached cotton wool covered with a piece of white linen—an old handkerchief makes an excellent cover for a french polishing pad. It is inadvisable to use coloured materials for the covering as the colours may be soluble in the ingredients used for the polish. Bodying, which is done to build up the thickness of the deposit on the surface of the wood, is done in much the same way as fadding, and oil is used to lubricate the rubber. The first pattern movements of the bodying pad are straight backward and forward strokes with the grain of the wood and the pad should be lifted cleanly off the ends and not scraped on the edges of the piece of work being treated. This part of the job should be done in reflected light so that the condition of the surface may be viewed while the bodying is in progress. The first bodying strokes are illustrated in *Fig. 137 (c)*. As the surface of the work commences to gleam brightly the pad should be recharged and the pattern of the

surface movements should be changed to cover every part of the surface with an even thickness of polish. At the end of each session the work should be left to dry for at least 24 hours. The next time the job is tackled a further thickness of polish is built up in the same way. Between each stage of work the surface should be lightly rubbed down with worn grade-o glass-paper. To complete the bodying, when a sufficient thickness of polish has been built up at the last application of the rubber, the oil should be left on the surface. This simply means that after the final session the surface should be dull and not gleaming.

Before commencing the final stage of french polishing, the used rubber should be charged thinly with polish and taken over the surface of the work until all the oil on the surface is removed and the polish gleams evenly all over the piece of work. This stage of preparation for the final process is done by using the rubber in straight strokes, the longest way of the work, and gliding the rubber off the surface at each end. If this is not done surplus polish will be scraped from the face of the rubber and thicken the edges of the work. With all traces of oil removed, the job should be left to stand for four or five days for the thickness of polish to thoroughly harden and with this done the french polishing is completed by the process known as 'spiriting off'. This is done by using a freshly made rubber which should be half charged with methylated spirit and half charged with polish.

To commence spiriting off the half-and-half rubber is taken over the surface of the work with a series of oval movements and changing to straight strokes; the rubber should be recharged as it dries. This is followed by polishing with the rubber fully charged with methylated spirit, and the rubber used for this part of the job should be an old polish rubber that has been well washed out in methylated spirit. The spirit rubber should only be charged very lightly; if too much spirit is used this will soften the shellac in the thickness of polish previously applied and the surface will be worked into a series of ridges and ripples. The spirit pad is used with long straight strokes over the surface of the work in the longest direction of the piece and it is used as a burnisher to make the layer of polish gleam brightly and evenly all over the surface.

The last stage of french polishing is done by rubbing lightly over the work with a soft cloth dusted with Vienna chalk.

In addition to the orthodox method of french polishing described above the handyman carpenter may be interested in proprietary brands of polish made especially for amateur polishers. There are several of these which may be used successfully if the applications are made strictly according to the manufacturers' instructions. The amateur polishes are quicker and easier to use than french polish, but in the author's opinion they do not completely replace the quality of an expertly applied french polish.

The last stage of wood finishing described in this section is polishing with wax. **Polishing with Wax:** The preparation of the work for polishing a piece of furniture with wax is the same as described above for polishing with oil, but if the wood has

a fine grain with no large surface irregularities it is not essential to apply the filling process. Wax polishes for woodwork may be purchased ready for use or the handyman may make his own polish from pure turpentine and beeswax. The home-made polish is made by dissolving 4 oz. of beeswax in $\frac{1}{2}$ pint turpentine; the wax should be shredded into the turps in a suitable container and left to stand for some time until the beeswax dissolves. This part of the job may be hastened by heating the mixture of beeswax and turpentine, but care should be taken if this is done to avoid the danger of the polish catching fire. The heat is best applied by placing the polish container in a saucepan of hot water (see Fig. 136). The

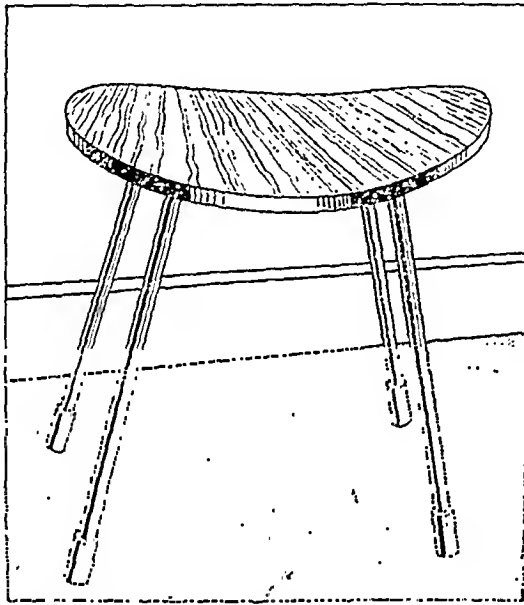


Fig. 138. A 'Brianco' table with single-piece metal legs

home-made beeswax polish should be coloured to a suitable shade for the job being done by adding dry powder colour to the turpentine before shredding and dissolving the wax. Tinted polishes should be strained after melting them by decanting them into another container covered with a fine-mesh cloth. The polish is applied to the work with a cloth which should have a firm surface with no loose threads. First coatings of polish may be applied quite heavily. Mouldings and any small surfaces are best treated by applying the soft polish with a small paintbrush. After applying the polish the piece of work should be left overnight for the wax to harden. The wax hardens when the turpentine evaporates, to leave the pieces of work covered with pure wax, and this coat is brought to a fine gleaming shine

SIMPLE CABINET-MAKING

by burnishing it with a soft shoe-brush. More than one coat may be necessary for some jobs and the final burnishing is completed by rubbing the surface with a soft cloth. There is no restriction to the number of coats of polish which may be applied and this will vary according to the properties of the wood in absorbing the polish. A waxed polished surface is easy to revive by rubbing the piece of furniture over with a soft cloth dampened with turps and the revived piece should be left for several hours for the turpentine to evaporate before finally burnishing.

Table for Converting Millimetres into Inches

<i>Millimetres</i>		<i>Inches</i>	<i>Millimetres</i>		<i>Inches</i>
1	=	$\frac{1}{32}$ +	9	=	$\frac{3}{8}$ —
1 $\frac{1}{2}$	=	$\frac{1}{16}$ —	12 $\frac{1}{2}$	=	$\frac{1}{2}$ —
2	=	$\frac{3}{32}$ —	15	=	$\frac{19}{32}$
3	=	$\frac{1}{8}$ —	18	=	$\frac{23}{32}$
4	=	$\frac{5}{32}$	19	=	$\frac{3}{4}$
4 $\frac{1}{2}$	=	$\frac{3}{16}$ —	22	=	$\frac{7}{8}$
5	=	$\frac{3}{16}$ +	25	=	1 —
6	=	$\frac{1}{4}$ —			

+ = a good inch, — = a tight inch.

These are approximate equivalents.

UPHOLSTERY AND UPHOLSTERING REPAIRS

Scope of the handyman—methods of upholstering—padded seats—sprung seats—use of rubber webbing—use of foam rubber.

TOOLS. Hammer—tack-remover—webbing strainer—bradawl—needles and scissors.

MATERIALS: Webbing—hessian—burlap—hair—down wool. *Reseating an Armchair:* Common type of repair—inspection of underside—removing dust-cover—importance of making sketches—replacing helical springs—securing springs to webbing—fitting a new dust-cover. *Replacing Webbing in the Seat of a Chair:* Treatment of different types of repair—removal of damaged webbing—cleaning the inside of the seat—lining the cavity—replacement of springs—securing springs—method of fitting and securing webbing—use of special tools—finishing. *Reseating a Sprung Chair:* Nature of the repair—stripping the seat frame—replacement of webbing—replacing and securing helical springs—‘stringing’—treatment of edges—alternative method of securing springs—treatment of the corners—hessian cover—padding—covering the seat and finishing—use of foam rubber. *Upholstering Chair and Stool Seats:* Treatment of solid seats—upholstering lift-out-frames—method of recovering small seats—use of canvas edge rolls—treatment of corners—covering and finishing—use of foam rubber. *Sprung Cushions:* Construction—making pockets for the springs—joining the pocket covers—positioning springs—stringing—padding and covering. *Seating Chairs and Stools with Seagrass:* Special tools—securing the seagrass—weaving chair covers—securing ends—finishing—patterns for seagrass seats.

THE handyman with a knowledge of upholstery can do much to improve the appearance and comfort of his home and save on the cost of repairs. Most handy-men, even those of more than average ability, consider the work of an upholstery repair as something beyond their scope, but there is nothing very difficult about this type of job, if it is tackled in the right way. If the back, arms, or seat of a chair sag after years of wear, the usual handyman approach is to diagnose the cause as a broken spring, but springs used in upholstery are very strong and rarely break; in most cases the trouble is due to stretched or rotted webbing, which is quite easy to replace.

There are different ways of upholstering a piece of furniture; these vary according to the nature of the construction of the piece. The simplest method of upholstering is that of padding a seat with a solid base, such as a window seat (see *Fig. 139 (a)*). An improvement on this method is the use of webbing to support padding and stuffing; such as in the case of dining-room chairs as shown in *Fig. 139 (b)*. Alternatively, small seats of this nature, and some larger seats, may be sprung by using coil springs as illustrated in *Fig. 139 (c)*. These of course are not the usual upholstery springs which are known as ‘helical’ springs and may also be referred to as spiral springs. Coil springs are used, as shown in the illustration, to provide

'give'; they are fixed to suspend a central foundation which may be canvas or wire mesh anchored to the framework as shown in *Fig. 139(c)*.

Another method of providing 'give' which is also illustrated in *Fig. 139(d)* is the use of elasticized webbing; the elasticized webbing consists of a rubbery

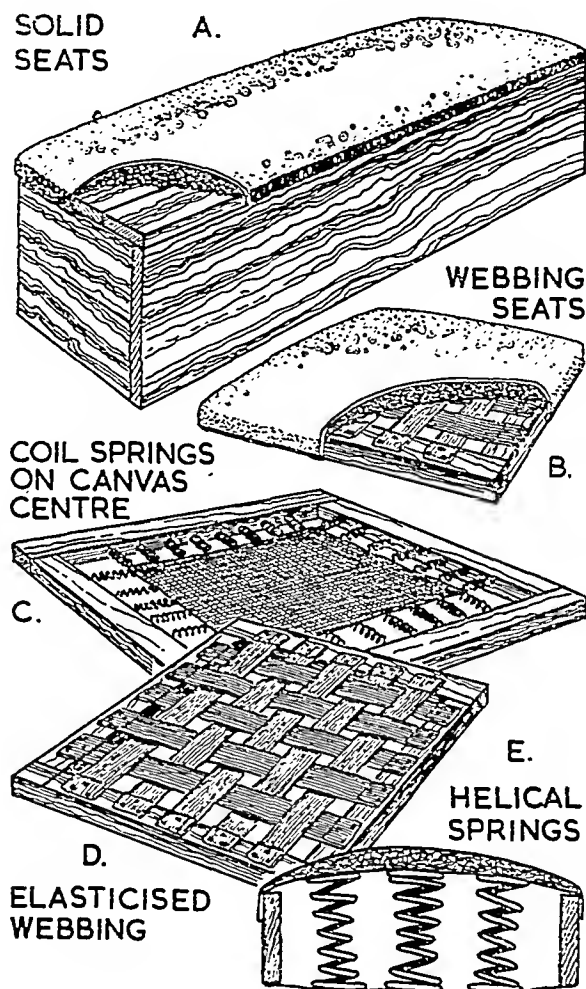


Fig. 139.

plastic which is extremely strong. Another method of upholstering seat and arms, or back, of a piece of furniture employs the use of helical springs, and this is also illustrated in *Fig. 139(e)*, which shows sectional drawings of the different types of springing used.

In addition to the methods outlined above, upholstery may be done with synthetic materials made in thick ribbed sheets or solid sheets of foam rubber,

which may be used in conjunction with the different types of springing described above, or separately.

The handyman who wishes to upholster furniture of his own make may profitably consider the use of synthetic cushioning materials, which have many advantages in that they do not deteriorate and are less likely to hold dust than other types of upholstery bases. In addition to the usual methods of upholstering described above there are other methods of recovering seats, especially those of stools and small chairs, which may be seated or resealed with rushes, seagrass and cane, etc.

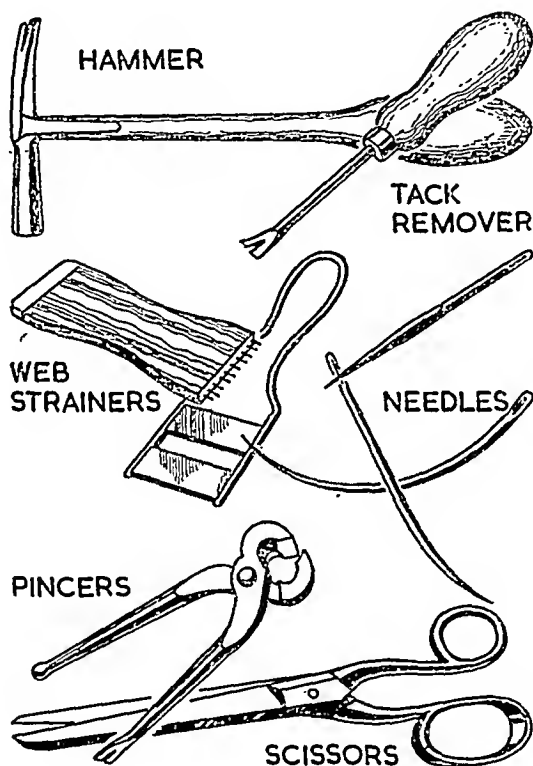


Fig. 140.

Tools: The tools required for upholstery repairs are few and simple; these consist of an upholstery *hammer* of the type illustrated in Fig. 140, which has a claw at one end of the head and a small anvil at the other. As an alternative to this tool, a tack-hammer or pattern-maker's hammer, as previously described, may be used. A *tack-remover* of the type illustrated in Fig. 140 will be found extremely useful if many repairs are to be done.

A *web-strainer* will be required. There are different types of web-strainers, two of which are illustrated in *Fig. 140*. One consists of a piece of shaped wood, one end of which is fitted with points, the other type is of shaped wire. In addition to the web-strainers illustrated, special webbing pliers are available. Use of these is not really necessary to the handyman, who will be able to do the job quite well with either of the strainers mentioned above.

In addition to the main tools, a *bradawl* with a long blade and a sharp point will be required, also some large *needles*, including curved sacking needles (see *Fig. 140*). Pincers are used in upholstery repairs, also a pair of sharp *scissors*.

Miscellaneous requirements include some mattress twine, a supply of strong thread, chalk, and some upholsterer's tacks.

Materials: The main material required is upholsterer's webbing, which is obtainable in rolls and in different widths ranging from 1½ in. to 3 in. The webbing is described as canvas webbing and should not be confused with the elastic webbing previously mentioned in this section. The webbing is used to support helical springs and may also be used for other types of upholstery.

Another material required for upholstery repair jobs is hessian. This is a loosely woven material usually attached to the underside of seats to prevent interiors becoming laden with dust. A finer woven hessian or burlap is used in upholstery for covering layers of materials. Upholstery embodies the use of padding and stuffing—usually the main material is hair covered with a layer or layers of down wool.

Covering materials may be any strong furnishing fabric. As in all forms of handyman work, the use of inferior materials will be found false economy and the materials for upholstery repairs should be of good quality to ensure satisfaction and long life.

Any other tools, materials and equipment required are described in the following instructions.

RESEATING AN ARMCHAIR

This is one of the most common types of upholstery repairs which will be encountered by the handyman. It should be appreciated that the seat of a chair, although strongly made, is subject to a good deal of strain. Eventually something gives way and the seat becomes hollow or misshapen. In other cases a spring may become dislodged from its anchoring threads and work its way up through the padding. Repairs of this nature are tackled in the same way.

The first part of the job consists of turning the chair upside-down and removing the dustcover of open mesh webbing from the underside of the chair. The tacks holding the hessian in place should be withdrawn with a tack-remover described above, or they may be lifted with an old screwdriver. Removal of the hessian permits access to the underside of the seat when the nature of the repair should

be obvious. In some cases the helical springs may have loosened through rotting of the twine holding them in position. This type of damage can easily be seen and put right, and it may not be necessary to remove the webbing if it is in good condition. The end of any dislodged helical springs should be manipulated in position through the divisions formed by the crossed strips of webbing. The position of the springs may easily be determined by the general pattern of the springs remaining in position.

With the loose springs replaced and the ends of the rings firmly lodged against the intersection of the strips of webbing the springs should be resecured. This is done by stitching over the end rings through the webbing with upholsterer's twine threaded on a curved needle. Four stitches should be made at equal distances apart to secure each spring to the webbing, and the end of the twine should be firmly tied before cutting it. Before replacing the dust-cover the chair should be turned right way up to ensure that replacement of the spring has not displaced any of the stuffing and that the repair is sound and secure. With this done the old hessian may be replaced and tacked firmly to the framework of the chair, or if the hessian is badly damaged a new piece of hessian, or a piece of clean sacking cut to shape, should be tacked in position. The edges of the hessian or sacking should be folded under before securing it to the frame.

REPLACING WEBBING IN THE SEAT OF A CHAIR

The type of repair described above is extremely simple to carry out if the webbing is sound, but if the webbing has rotted, the repair will be a little more complicated, of course, and may involve completely rebuilding the inside of the seat, depending on the condition of the padding and covering. If the seat covering and the padding underneath it are still in good condition the repair involving the replacement of webbing may still be carried out from the underside of the seat and without stripping the frame to do the job. The chair should be turned upside-down and the arms rested on a sawing-horse or packing-case or on a suitable support to raise the job to an easy working level. With this done the hessian dust-sheet should be removed. If the webbing has rotted and broken it is quite possible that the interior of the chair will be rather a jumble, but before removing remnants of the webbing and the helical springs, the handyman-upholsterer should make a rough sketch of the underside of the seat showing, as far as possible, the positions in which the strips of webbing are secured to the sides of the framework and the arrangement of the springs. If the chair is so badly damaged that this cannot be done, it may be possible to make a reconstruction sketch from another chair of the same kind.

It may be found that only one or two pieces of webbing have been broken.¹ If

¹ It should be explained that upholstery webbing is a very strong material which does not break easily, and the main reason for failure of the fabric is due to rusting of the metal springs owing to storage of the chair for some time in a damp atmosphere.

only one or two strips of webbing have given way, it may seem that the repair is a simple one and merely consists of replacing the damaged strips. This impression however is misleading and when repairing a seat damaged in this way all the strips of webbing should be renewed. If this is not done the new strips will be much stronger than the remaining good strips which will give way, and the seat will soon require repairing again. Every piece of the old webbing should be removed and every tack extracted. It is bad workmanship merely to hammer the tacks into the wood. They should be completely removed, either with a tack-hammer or with an old screwdriver.

With the hessian webbing and springs removed the cavity inside the seat should be thoroughly cleaned out, and this is best done with a vacuum cleaner. In most repairs of this nature it will be found that the padding is in good condition, but

STITCHING ENDS OF SPRINGS TO HESSIAN LINING

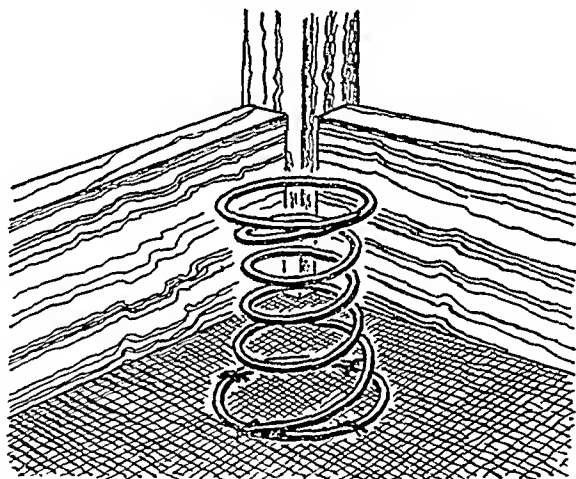


Fig. 141.

if the padding has been displaced by a loose spring it will be found a reasonably simple matter to reshape it from the underside of the cavity. To prevent further movement it would be advisable to line the cavity with a piece of tightly woven hessian which may be tacked to the underside of the old hessian lining the cavity.

The next part of the job consists of replacing the springs, and this should be done to position them according to the sketch made before taking the seat to pieces. The inner ends of the springs are stitched and tied to the new hessian lining, and the ring of each spring should be stitched four times, making the stitches at equal distances apart as illustrated in *Fig. 141*. The stitching is best done with a curved packing-needle and care should be taken not to pierce the covering of the seat, although each stitch should be firmly made and tied off.

To clarify these instructions a drawing of the formation of a typical arm-chair seat is given in *Fig. 142*. It will, of course, be appreciated that the number and spacing of the springs may differ between chairs made by different manufacturers, and the illustration, although of a typical seat, is merely given as a guide.

The replacement webbing should be of the same width as the old webbing, and in most cases with arm-chairs the width of the webbing is $2\frac{1}{2}$ in. or 3 in. The

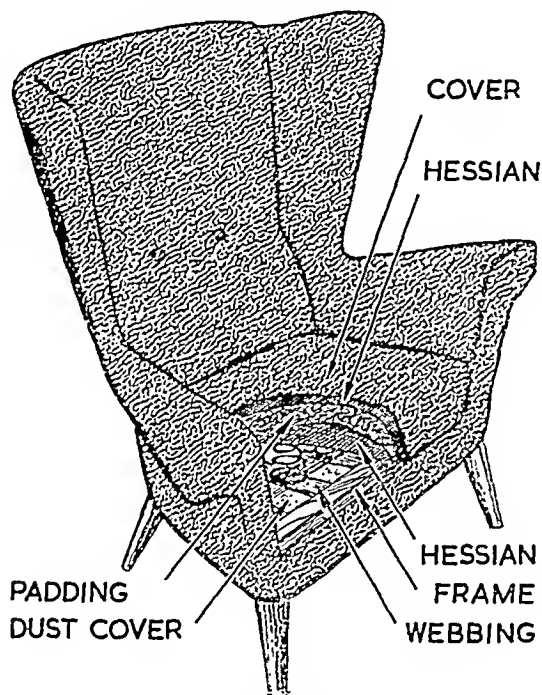


Fig. 142. Section of typical armchair

amount required may easily be estimated by measuring the old pieces and an extra allowance should be made for turning, stretching and cutting the new pieces. The webbing is attached to the wooden framework of the chair with upholsterer's tacks, as previously described. It is not necessary to cut each strip separately to length before starting the job; in fact it will be found best not to cut webbing from the roll until each piece is attached—the method of attachment is as follows.

First of all the end of the webbing is placed flat on the wooden edge of the seat as illustrated in *Fig. 143 (a)* and two tacks are driven through the webbing into the woodwork as illustrated in *Fig. 143 (b)*, which shows that a small amount of the end of the webbing is left free for turning over. The tacks should not be placed in an exactly straight line and it will be found best to stagger them slightly

UPHOLSTERY AND UPHOLSTERING REPAIRS

through the job; if this is not done the hammering of a dozen or so tacks in a straight line may split the wood of the frame. With the first two tacks secured the end of the webbing should be folded over as illustrated in *Fig. 143 (c)* and three more tacks inserted in the position shown. These tacks should be driven home quite firmly but not so hard that the heads cut into the webbing. With the

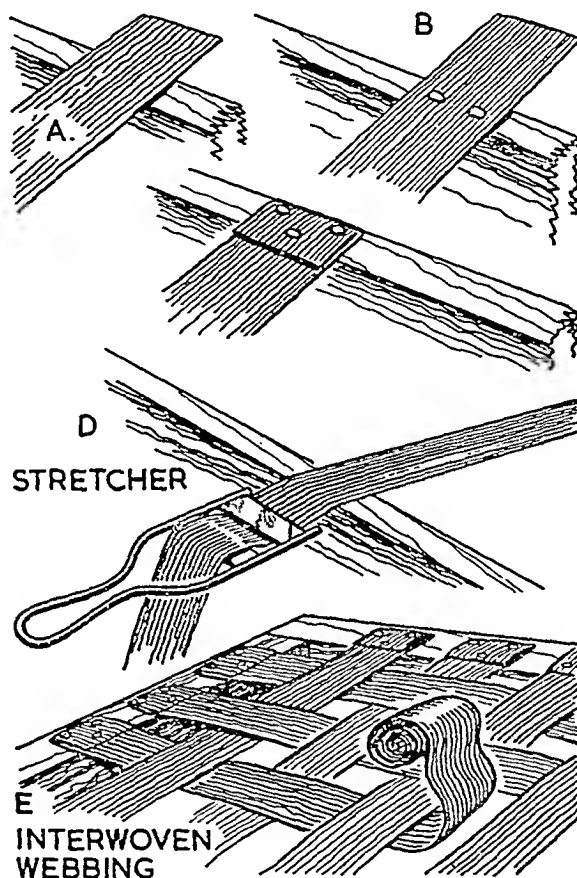


Fig. 143.

first end secured the webbing is unrolled across the frame and the webbing is stretched before securing it to the opposite end of the frame.

Two devices for stretching webbing have been described and illustrated in *Fig. 140*. These are quite easy to use, but the handyman who is entirely new to this type of job may have to make several attempts before obtaining a good result. Of the two types of webbing stretchers the wire type is considered best for handy-men to use. With the threaded stretcher held firmly at right angles to the edge of the framework (*Fig. 143 (d)*), two holding tacks should be driven into the wood-

work. The position of these tacks is exactly the same as for the first end of the webbing. With this done the webbing stretcher may be removed and the roll of webbing cut through with a sharp pair of scissors or a lino-knife to leave sufficient for turning over. The turnover is secured in the same way as the first end, as illustrated in *Fig. 143*. After securing one strip of webbing it will be found a simple matter to deal with the remainder.

The handyman-upholsterer should fix all the strips running in one direction before commencing to secure the crossing strips of webbing. The crossing strips are secured at the ends in exactly the same way as the first strips, but as the webbing is unrolled and stretched it is passed under and over the first strips to interweave it as illustrated in *Fig. 143 (e)*. This is done to provide extra strength, and the points where the strips of webbing cross support the ends of the helical springs. No attempt should be made to position the springs until all the strips of webbing have been firmly secured in place. With this part of the job done the springs are then positioned so that the base of each spring is firmly lodged against the strips at the point where they cross. With this done, each spring is stitched through four times, as previously explained, to hold them firmly in place. Before stitching the bottom rings of the helical springs to the webbing and replacing the dust-cover or fitting a new one, it is advisable to turn the chair right way up to make certain that the seat is fully shaped and that the springs have been properly placed. The job is then finished as described above, and the dust-covering tacked firmly to the undersides of the framework.

RESEATING A SPRUNG CHAIR

The two types of repair described above are those most usually encountered, but if the chair has been badly neglected it may not be possible to repair it without completely reseating it. This type of repair is similar to the last one described above, but it is done in exactly the reverse order and the reseating is done from the top and not the underside of the seat. It will, therefore, be necessary to remove the covering fabric of the seat and completely strip the seat of the chair before commencing the repair. Depending on the type of chair it will probably be necessary to loosen the upholstery covering at the sides and back of the frame. This is done as illustrated in *Fig. 144*, which shows that the loosened covering material is rolled back and pinned to provide easy access to seat. This part of the job usually consists of removing the gimp or braid and snicking a few stitches to release the seams of the covering material. With this done the chair should be turned upside-down, the dust-cover removed and a sketch made of the interior construction of the seat. The number and position of the springs should be marked on the drawing. It may be found with chairs of some manufacture that the sizes of the springs differ according to their positions in the seat; if this is so any positioning difference in sizes should be carefully noted in the sketch.

The next part of the job consists of stripping the seat and although the upholstery of chairs does vary greatly between the various manufacturers, in most cases it will be found that the formation of the seat from the bottom to top is as follows:

First the covering of loosely woven hessian, in most cases black in colour, which is tacked to the framework on the underside of the frame.

Secondly the strips of webbing, which are also tacked to the sides of the framework.

Thirdly the helical springs, which are stitched with upholsterer's twine to the webbing at the bottom end and the top end, which are usually stitched to a covering of hessian of a more closely woven and stronger variety than that of the dust-cover. It may be found in some chairs that the woven strips of webbing are replaced by metal slats or strips of wood. With some types of chairs the twine used for securing the springs is not stitched to the hessian cover and this method of securing will be dealt with fully later in this section.

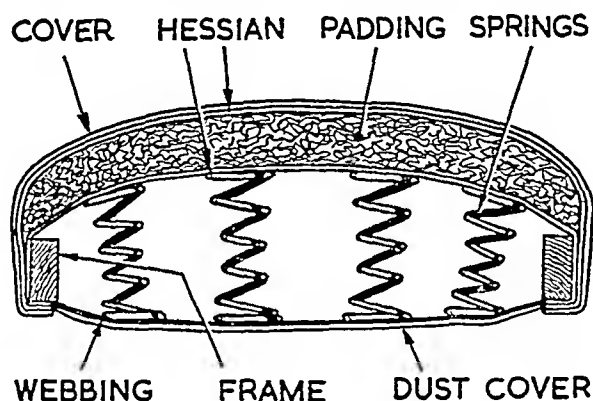


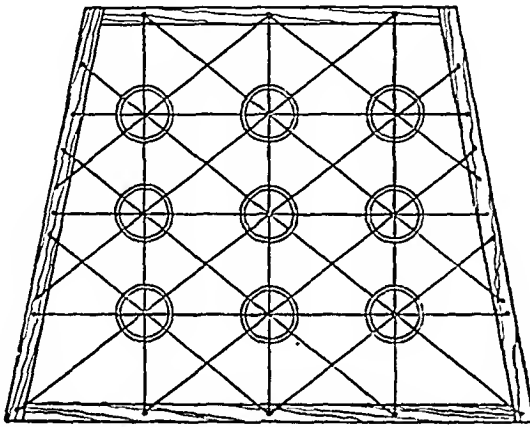
Fig. 144.

Over the hessian secured to the top of the springs will be found the padding; this may be of one or more materials, depending on the quality of the chair. Usually there is a layer of hair which is covered by a layer of down wool; this in turn is covered by a piece of hessian in chairs of cheap manufacture or a piece of cambric in chairs of better quality. The hessian or cambric is attached to the framework of the seat and a cross-section of the construction is illustrated in *Fig. 144*. The last part of the seat, of course, is the top cover of furnishing fabric.

It has already been explained that the number of springs in the seat may vary between chairs of different manufacture, and a construction sketch should be made before stripping. Every scrap of old material should be removed, all the tacks should be eased out and only if the heads of the tacks break off should they be punched into the wood. When stripping the layers of padding and covering materials it will be advisable to make a rough sketch of the manner of their fixing to the wooden framework of the seat.

The work of renewing the seat should be commenced by replacing the webbing; this is done in exactly the same way as previously described and care should be taken when renewing the webbing to space the strips evenly according to their original position. The webbing should be stretched as tight as possible and each strip should be tightened to equal tension as, obviously, one loose strip in the webbing will weaken the support. With the webbing in position the bases of the springs should be attached to the webbing strips, securing each one with four knotted stitches evenly spaced, as previously described.

The next part of the job, which consists of anchoring the tops of the springs, may be done in one of two ways. The springs may be anchored with upholsterer's



STRINGING

Fig. 145.

twine—and this is the professional method of doing a good quality job—or they may simply be stitched to a piece of hessian, stretched over the framework, and tacked at the sides. The anchoring by twine method is the one described below and this is known as 'stringing'. To clarify this process, the stringing of a typical chair seat is illustrated in *Fig. 145*; in this method each helical spring is firmly fastened with strong twine to tacks hammered into the edges of the frame of the seat. It will be seen from the illustration (*Fig. 145*) that each string or supporting length of twine is taken four times across each spring, and the method of stringing illustrated shows that the top ring of each helical spring is secured no less than eight times.

The positions of the tacks, to which the ends of the twine are anchored, should be marked on the edge of the framework with a straight-edge and pencil. Large tacks are used and these are driven in at an angle to slope outwards towards the edge of the framework as shown in *Fig. 146 (a)*. The tacks are not driven fully in;

UPHOLSTERY AND UPHOLSTERING REPAIRS

the heads are left partly protruding so that the twine may be wound round them and a second tack is driven in at about 2 in. from the first one. Commence the stringing as shown in *Fig. 146* by forming a slip-knot in the end of a length of twine and pulling this firmly on one of the second tacks. Take the twine round

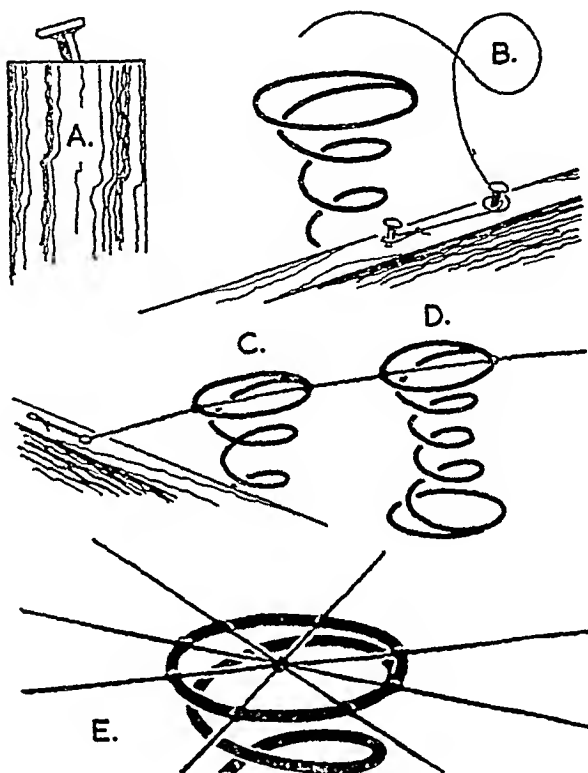


Fig. 146.

the holding tack across the first spring and tie it firmly to the ring at both sides as illustrated in *Fig. 146* (c); this should be done so that the position of the spring is not distorted, and each spring should be perfectly upright after stringing. Take the twine to the next spring in line and secure it firmly with two knots on opposite sides of the ring as shown in *Fig. 146* (d). The knots should be pulled firmly without displacing the springs or compressing them—during *all* the work of stringing the springs should remain at normal height. Continue along the row, tying each spring firmly in place in the same way, until the opposite side of the frame is reached. Wind the twine firmly round the appropriate tack at the edge of the framework and tie it off to the second tack. Then continue in the same way until each spring is firmly anchored by four crossing rows of twine as illustrated in *Fig. 145*.

The best method of stringing to secure good results is to work all the diagonal strips in one direction first, then crossing them with the strings at an angle of 45 degrees, continuing with one set of straight strings, and finishing with the crossing rows of straight strings. The final rows of strings are attached in a slightly different manner from those tied before, one extra knot being tied in the centre of the spring to secure each point where the three previous strings cross. This is shown in the illustration *Fig. 146(e)*.

After a few minutes of stringing the handyman-upholsterer will find this job quite an easy one to do, the main points being to tie the knots firmly, not to compress or distort any of the springs, and commence each row of stringing with a new piece of twine. This is done because if a continuous length is used for all

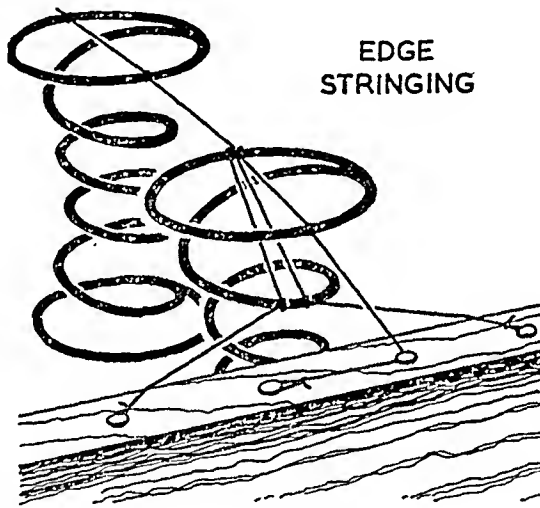


Fig. 147.

the strings and further wear causes a break, the interior of the chair may collapse, whereas, if only one supporting string gives way the remaining strings will hold the seat springs firmly in place.

After attaching the main strings—these are the eight described above—some extra work is necessary to finish securing the sides of the seat. This is done to reinforce the stringing at the edges, as is illustrated in *Fig. 147*, by attaching short strings running diagonally downwards from the edge springs to the framework as shown in the illustration. To do this, it will be necessary to drive two extra tacks into the framework as shown in *Fig. 147*. A length of twine is then tied on the inside ring of the outside spring to leave two ends of equal length; these are brought down through the spring, knotted firmly to one of the helical spirals (*Fig. 147*), then each end is taken to a tack, bound firmly round and tied off.

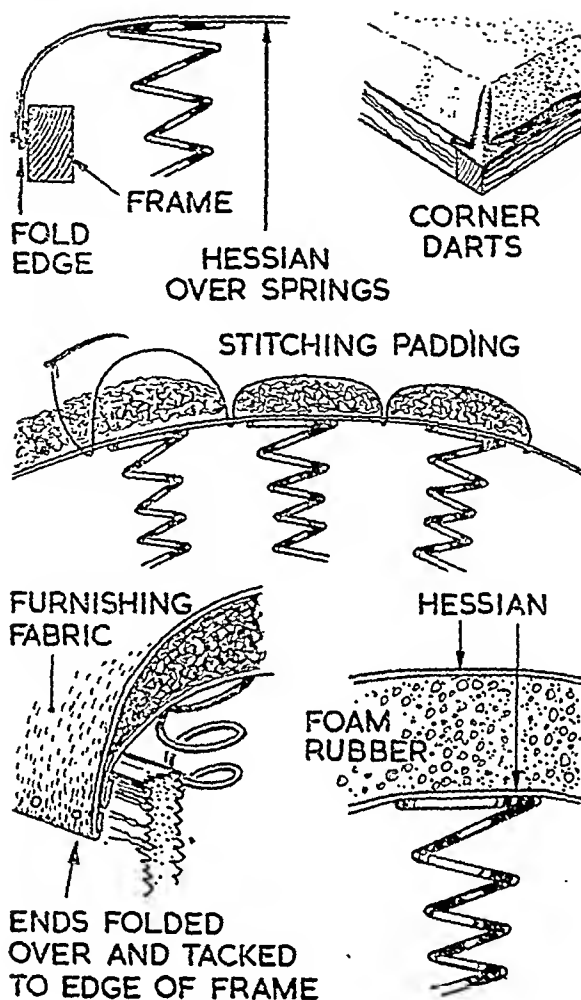


Fig. 148.

This complete method as described above will be found the most satisfactory way of securing the springs in a seat; it should be appreciated when estimating the amount of work necessary to make a good job of the repair of a chair seat, that it has to support a great deal of weight and should be capable of standing up to quite hard usage. As an alternative to this method of anchoring the springs, they may be simply stitched to the hessian cover, which is the next piece of the seat to be attached, and although this is often done in chairs of cheap quality, it is not recommended as a completely satisfying workmanlike job. The hessian used for covering the springs is of the closely woven type; it is secured by nailing it to the sides of the framework with the edges of the hessian folded under as illustrated in Fig. 148, tacks being driven through both thicknesses of the material. The

hessian should be firmly fitted and quite well stretched, although it should not compress or distort the springs. It will be found best to tack one side of the hessian to one edge of the frame first then attach the opposite edge before dealing with the two sides. At the corners of a shaped seat it will be necessary to fold the hessian as shown in the illustration to make simple darts, and these may be further secured by stitching them with upholsterer's twine. Upholsterer's twine should also be used with a looped needle to stitch the first hessian to the top rings of the springs, and if the springs are strung as previously described it will only be necessary to make two knots at opposite sides of the spring to keep the hessian in place.

With the hessian secured, the padding is placed in position. The padding should be fluffed up and spread evenly over the hessian, laying such a thickness that the rings of the springs cannot be felt when the hand is laid and pressed gently on the top of the padding. The padding is secured to the hessian foundation with long loop stitches as illustrated in *Fig. 148*. To provide a good finish, if hair padding is used, a final layer of down wool should be spread over the padding, and the seat is then again covered with a piece of hessian, which is attached in exactly the same way as the foundation piece of hessian over the springs, except that it is not stitched through.

The last part of the job consists of recovering the seat with a furnishing fabric, the edges of which are taken over the framework and secured to the sides (*Fig. 148*). With this done, the rolled edges of the sides and back of the chair should be unpinning, straightened in position and fixed securely in place. The last part of the job consists of fitting the underside of the seat with a dust-cover.

As an alternative to the use of hair padding and down wool, sheets of foam rubber may be cut to size and fitted over the springs. These of course should be anchored in the usual way and covered with a sheet of hessian before placing the layer of foam rubber in place. The foam rubber is best held in position by covering it with another piece of hessian, which should be stitched all round to the foundation hessian or tacked to the frame, as illustrated in *Fig. 148*.

UPHOLSTERING CHAIR AND STOOL SEATS

Not all forms of upholstered seats are sprung and common examples of sprungless seats are those of stools and the seats of chairs which lift out—usually dining-room chairs. The difference in these two types of sprungless seats is that the base on which the upholstery is done may be solid, as in the case of the needlework stool described in the previous section on cabinet-making, or the base may be a frame, such as in the case of lift-out seats. Both types of sprungless seats are illustrated in *Fig. 149*, which shows the sectional construction of both methods of upholstery.

Upholstering Solid Seats: The upholstering of solid seats is done as shown in *Fig. 149*, by padding the base and covering the layer of padding with a suitable furnishing fabric. The filling is done with hair padding topped with down wool,

or the seat may be fitted with a piece of foam rubber cut to the size of the base and covered with upholstery fabric. If padding is used the base should first be covered with hessian, and this is done to provide a means of anchoring the padding so that it does not move after the seat has been covered. The method of attaching the hessian is illustrated in *Fig. 150*. Before attaching the hessian, the sharp edges of the top of the wooden base should be gently rounded off. A piece of hessian is then cut to the bare size of the seat-top, placed in position over the base, and tacked at the sides and ends, as illustrated in *Fig. 150(a)*. With this done the edges of the seat are given firmness by padding them with rolls of canvas or down

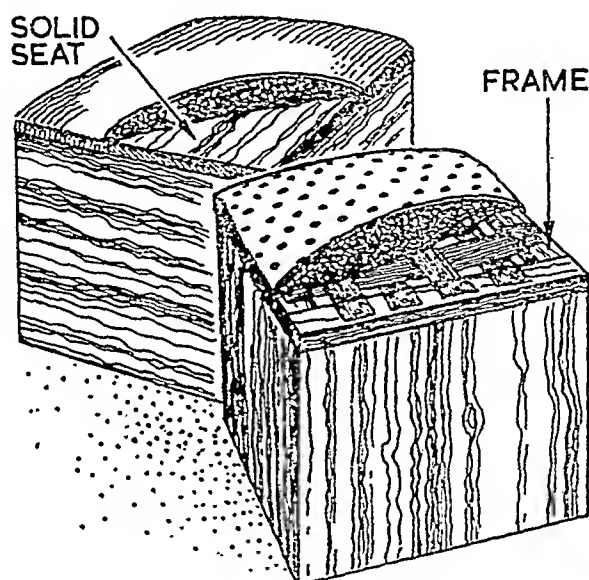


Fig. 149.

wool, as illustrated in *Fig. 150(b)*, which shows how one edge-roll is fitted to each side of the seat. The rolls of material are lightly attached to the seat by stitching them with tacking stitches to the hessian. With the edges padded, the cavity in the centre of the seat is filled in with hair which is pulled out and laid in to fill the seat firmly, with a slight slope towards the edges as illustrated in *Fig. 150(c)*. The padding is secured to the seat with long stitches through the hessian, using a curved needle, and the seat is then covered with a layer of down wool which should be taken over the rolls at the edges as shown in *Fig. 150(d)*. The down wool is followed by a covering of hessian which is held in position with tacks driven through the hessian into the edges of the base. The edges of the hessian should be folded under as shown in the illustration. Although the hessian should be firm it should not be pulled too tight, when tacking it down, to distort the

UPHOLSTERING CHAIR AND STOOL SEATS

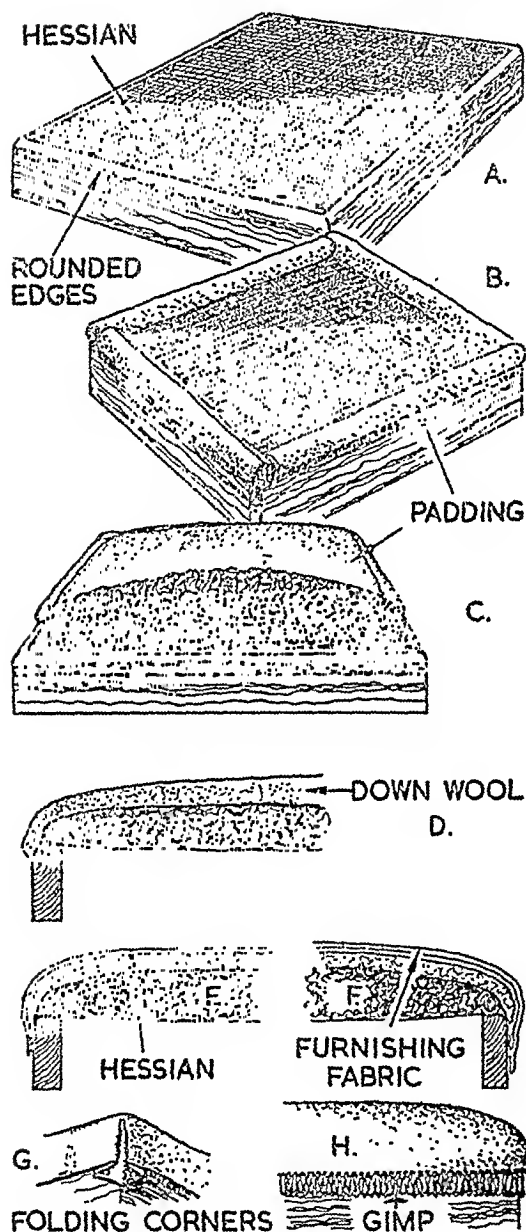


Fig. 150.

shape of the seat. It will be found best to place a tack through the centre of the hessian at each edge, then working from alternate edges driving in the remaining tacks, while smoothing and tightening the hessian, and finishing at the corners.

It should be possible to form the hessian edges neatly over the corners without folding it.

The final treatment of the seat consists of attaching the covering of furnishing fabric as shown in *Fig. 150(f)*. Note that the edges of the fabric are folded under before the tacks are driven in. If the covering material rucks up at the corners, the covering should be folded as shown in *Fig. 150(g)*, before driving the tacks in position. The lower edge of the seat is then finished by attaching a length of gimp or braid, and this may be attached with tacks or with a fabric adhesive. The position of the braid is shown in *Fig. 150(h)*.

If the solid seat is to be fitted with rubber foam it is only necessary to cut the rubber to shape. Place it on the seat and hold it in position with a covering of hessian, tacked to the sides of the seat before attaching the upholstery fabric, the bottom edge of which is finished with gimp or braid.

Covering Seat Frames: The covering of a framed lift-out seat is done in very much the same way as the upholstering of the solid seat described above, the difference being of course that it is necessary to provide a foundation within the open frame, upon which the layers of upholstery can be built.

The foundation consists of strips of webbing which are nailed to the seat frame as illustrated in *Fig. 151*. In most cases with seats of this kind, it will be found that the back of the seat is narrower than the front, and the spaces between the strips of webbing which run from back to front of the frame, should be slightly wider in the front than at the back—this is shown in *Fig. 151*. The webbing of $1\frac{1}{2}$ in. or 2 in. width should be attached to the frame as previously described, using a webbing stretcher to impart firmness to the foundation. The webbing, of course, is fitted over the top edge of the frame and the interwoven strips of webbing should be placed as close together as is possible, to leave very little spacing between the separate strips. With the webbing firmly tacked in position the frame should then be covered with a layer of hessian tacked at the edges to the top as shown in *Fig. 151(b)*. With this done, the edges of the seat are filled in with rolls of canvas or padding, as described above.

The remainder of the job is done in exactly the same way as for a solid seat, except that the edges of the final cover should be taken over the sides of the frame and tacked underneath as illustrated in *Fig. 151(c)*. Alternatively, the lift-out seats may also be upholstered by attaching the layer of foam rubber over the webbing and hessian foundation, and covering the soft rubber padding with a layer of hessian, before finishing with the furnishing fabric (*Fig. 151(d)*).

The Use of Sponge Rubber: Although most of the pieces of upholstered furniture sold today are sprung and padded by the method described above the use of rubber webbing and sheets of cellular foam rubber is becoming more popular. To illustrate the use of these materials, the construction of an upholstered chair is illustrated in *Fig. 152*. This sectional drawing shows that the layers of thick foam rubber are simply laid over a foundation consisting of strips of webbing

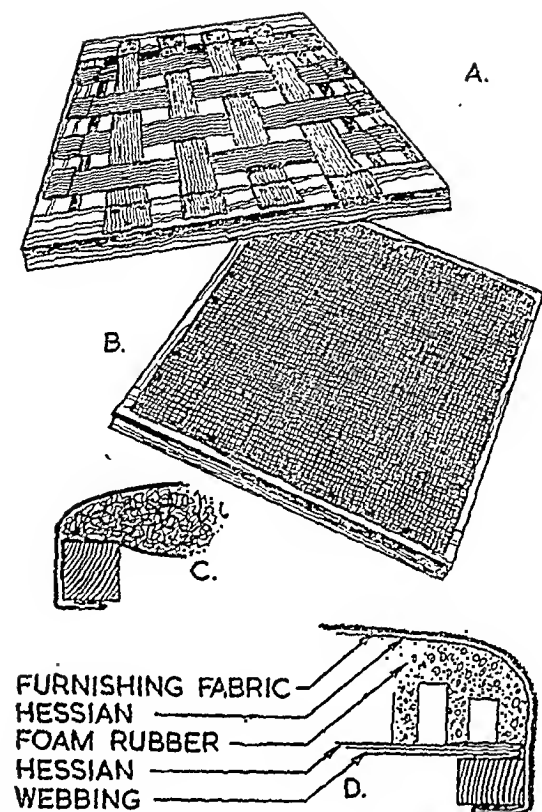


Fig. 151.

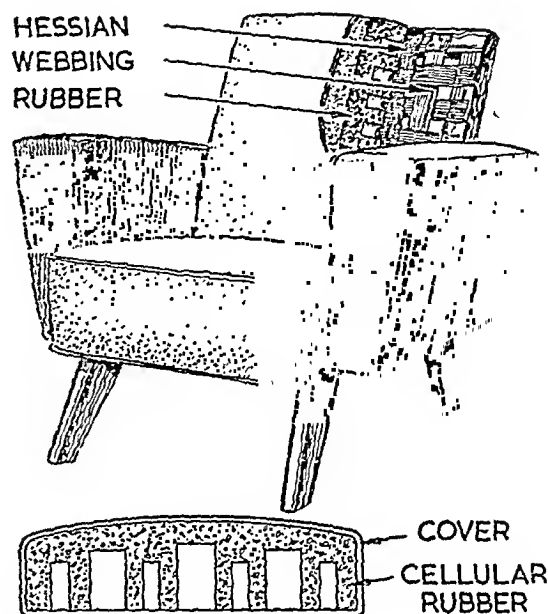


Fig. 152.

covered with hessian. The webbing, of course, is also of rubber and is not the usual canvas webbing. The layer of thick padding is held in place by a cover of hessian which is tacked to the edges of the framework before the final covering of upholstery fabric is applied.

In addition to the use of these modern synthetic materials for padding frameworks, they may also be used as filling for loose cushions placed on chair seats—either of the sprung type or of the modern rubber-covered type. The sectional construction of a loose cushion, the filling of which is foam rubber, is illustrated in Fig. 152. The rubber may be purchased in sheets of standard size and is easy to cut with a sharp knife or pair of scissors to the size of the cushion. After cutting to shape it is simply covered with the finishing upholstery fabric of the same type as that used for covering a chair.

Another method of giving resilience to chair cushions embodies the use of helical springs.

Loose Sprung Cushions for Chairs: The construction of sprung cushions is illustrated in *Fig. 153*. These cushions are made to the exact size of the chair seats between the arms and the back. They have flap tops and undersides, and flat square sides. The usual depth of the cushions is about 4 in. and these types of cushions are not difficult to make by the handyman-upholsterer. It will be seen from the illustration (*Fig. 153*) that these cushions are made to the exact size of the chair seats and that the springs are placed in pockets. A pattern shape of the pocket covers is given in *Fig. 153*, and the material used for the spring pockets should be of good quality linen. The pockets should be made so that the springs fit tightly inside them and a separate pocket is made for each row of springs. The construction of the cushion which is illustrated in *Fig. 153* shows 16 springs which are arranged in four rows of four springs each, therefore the pocket for each row should contain four springs. The length of the pocket is decided by multiplying the number of springs by the diameter of their outside rings. Therefore, if the rings of the springs have a diameter of 3 in., and four springs are placed side by side in each pocket, the length of the pocket will be 12 in. A sensible allowance should be made for turnings and seams. The depth of the sides of the pocket is, of course, that of the uncompressed spring. When making a pattern for pocket covers a sensible allowance should be made for turnings.

The pocket covers are stitched up leaving the top seams open for the insertions of the springs, as illustrated in *Fig. 153(c)*. The springs are attached inside the pocket at the bottom by stitching through the cover, over the bottom ring of each helical spring, with four stitches placed at equal distances apart. The bottom rings of all the springs in the pocket should be secured before the top is folded over the edges seamed. With the pocket closed the tops of the springs should be anchored to the top of the pocket with four stitches each, in the same way as the lower rings are dealt with. After making pockets for each row of springs the pockets are placed together, as illustrated in *Fig. 153(d)*, and the edges joined by oversewing. To strengthen the construction of the interior of the sprung seat, the springs are then 'strung' in the same way as described for stringing a chair seat on page 307, except that it is only necessary to use two crossing rows of strings which should be secured at each end to the outside edges of the pockets. The stringing should be done at both sides (top and bottom) of the pockets to secure both ends of the springs. With this done, the sprung foundation is ready for covering. The pocketed springs are covered with a roll of thick down wadding which is placed over the pocket as shown in *Fig. 153(e)*, the open ends being filled in with sheets of wadding cut from the roll. With this done the padding is covered with hessian before the final covering of upholstery fabric. The method of attaching the hessian is illustrated in *Fig. 153(f)*. The final cushion cover should be fitted with snap fasteners at one end so that the cover may be easily removed for later cleaning. Instructions for making covers for sprung cushions are given in the following section.

UPHOLSTERING CHAIR AND STOOL SEATS

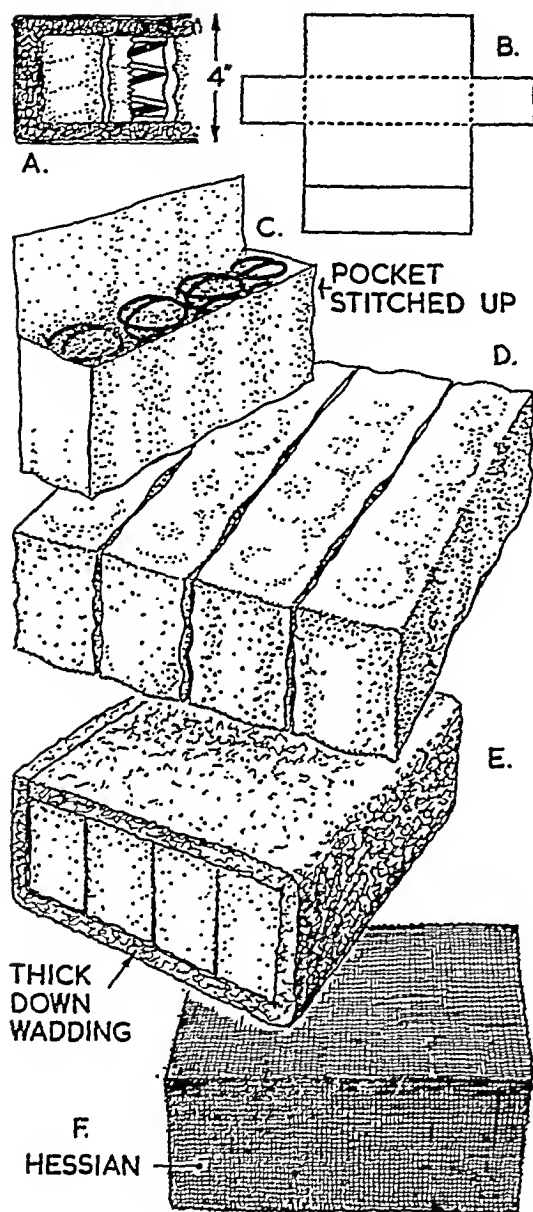


Fig. 153.

Upholstering Chairs and Stools with Seagrass: This is a method of covering the seats of small chairs—usually bedroom chairs—and stools with a strong pliable material

which can be bound and woven over the seat frames. Seagrass is the best material to use for this purpose; in appearance it resembles a thick stranded string. It is obtainable in a good variety of colours from local handicraft shops and it is sold by the pound. A pound of seagrass is sufficient to cover a seat of average size. The tools required for covering seagrass seats are a needle and a shuttle. Both of

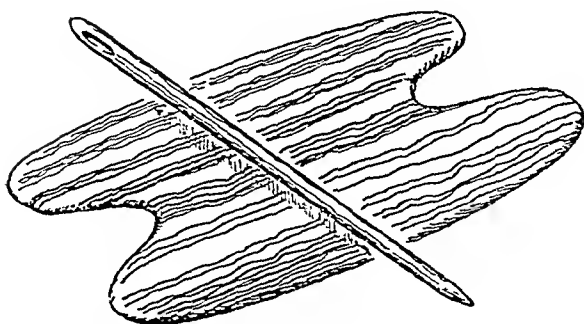


Fig. 154.

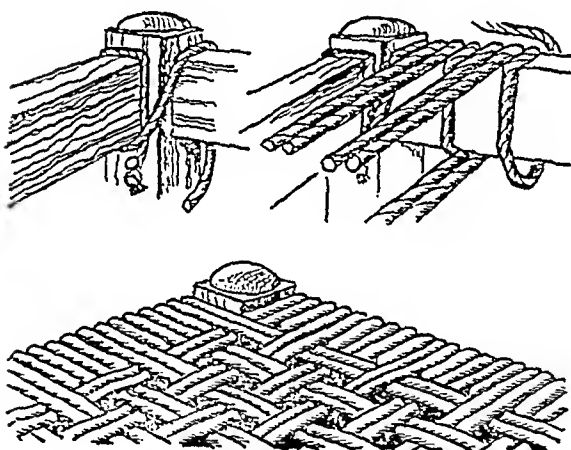


Fig. 155.

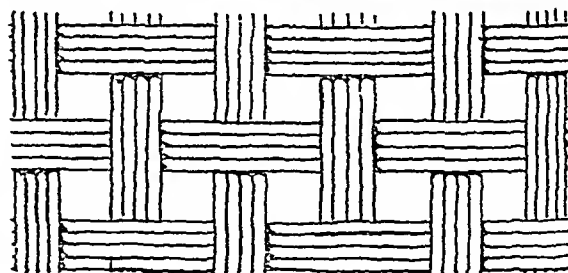
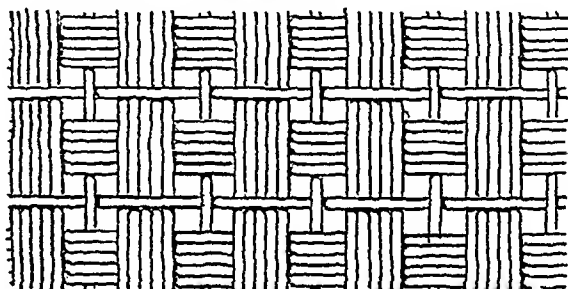
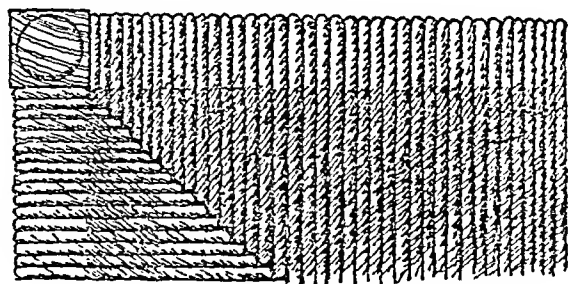


Fig. 156.

these are illustrated in *Fig. 154* and these simple tools may easily be made by the handyman from 4-mm. three-ply. The seagrass is wound on the shuttle and the large wooden needle is used for threading the seagrass through interwoven strands of the seat covering.

Several different patterns may be worked with seagrass and the one illustrated in *Fig. 155* is suitable for beginners. The seating is done by binding the strands of the seagrass over the sides of the frame of the stool or chair. The first strand is secured by binding one end of the seagrass, wound on the shuttle, over the

edge of the framework near a corner and tacking the end with an ordinary tack to the leg of the stool or chair where the tack will not be seen in the finished job (see *Fig. 155*). The end of the seagrass is knotted to prevent it unravelling. The seagrass is then wound over the frame members, covering the seat in one direction either from side to side or from back to front. It is necessary to keep the strands of seagrass as tight as possible when winding them over the frame. For the pattern illustrated in *Fig. 155* two strands of seagrass are taken over both opposite members of the frame, then one strand is simply taken over *one* of the members of the seat frame, as shown in the illustration. This forms a spacing of one strand which is necessary to fill the pattern when working the crossing strands of seagrass. Continue to fill in the seat, working from member to member with two complete strands, then with one strand spacing and so on. When the seat is completely filled in, a knot should be tied in the seagrass near the end of the last strand worked, and this should be tacked firmly to one of the legs, underneath the seat, before cutting the seagrass.

The strands across the seat are worked in exactly the same way. Commence by tying a knot in the end of the seagrass and nailing it to a leg underneath the seat. The crossing strands of seagrass are worked in two's under and over the first pairs of strands as shown in *Fig. 155*. This part of the job is best done by taking the seagrass off the shuttle and threading it on the wooden needle. The needle is then inserted under and over the pairs of strands, pulled through tightly and the seagrass taken under the rail before bringing it back again; the crossing strands are worked in pairs, leaving one row spacing between. To facilitate easy working of the needle through the first strands of seagrass, a strip of wood or ruler may be used to open the strands, and turned on edge to open them. After each pair of strands has been worked across the seat, the stick should be withdrawn and re-threaded through the pairs of strands to open them in alternate order. Finish by securing the knotted end of the seagrass and tacking it to a leg under the seat.

There are many other patterns for seagrass seats which are easy to work and some suggestions are given in the illustration *Fig. 156*. It is a very simple matter to find how to work a pattern by practising with some odd lengths of seagrass on the framework of a chair or stool before filling it in. Patterns may be worked in one colour or the colours in the pattern may be varied.

LOOSE COVERS

MAKING LOOSE COVERS. *Advantages of loose covers—sets of covers—fabrics for loose covers. Estimating Materials: Equipment for making loose covers. Making Scarves for Chairs: Method of measuring—use of patterned materials—finishing. Measuring for a Loose Cover: Sequence and method. Pattern-making: Use of paper patterns—how to make patterns—using patterns on patterned fabrics—turnings and seams—tucks—cutting materials. Cutting Covers without Patterns: Sequence of work—method of assembly—openings for plackets—seams for fabrics—fitting and finishing. Treatment of Covers for Large Chairs: Covering a wing chair—shaping and turning. Piped Covers: Use of piping—making piping—covering with cord—stitching and finishing—inserting the piping—sequence and method. Plackets: Plackets on loose covers—methods of securing—position and number of plackets. Box-pleated Flounce: Method of measuring and marking—pleating—sewing—attachment of pleated flounce to covers. Covers for Loose Cushions. Repairs to Loose Covers. Loose Covers for Divans: Making matching covers—use of piping—day covers for pillows.*

COVERS FOR CHAIR SEATS. *Covers for dining-room chairs—types of chairs—suitable materials—making covers—use of paper patterns—assembly and finishing—covers for different types of chairs. Covers for Armless Chairs: Measuring and pattern-making—cutting the parts to shape—assembly and finishing. Covers for Occasional Chairs: Treatment of Victorian chairs and settees—alternative methods of manufacture. Covering Settees and Sofas: Differences in construction. Covered Chair Pads: Use and purpose—covering materials—padding materials. Covers for Window-seat: Use of a squab—method of construction—cutting and assembly—padding—inside and outside covers—attachment of tufts—alternative treatments.*

THE making of loose covers at home can effect a great saving on costs, as professional charges for making them are generally high—not because there is any particular difficulty in the making of a loose cover to fit any style of chair or settee, but they do require a considerable amount of time spent both in their manufacture and fitting. Loose covers have several functions; they can be used to protect a new chair or a suite of furniture from undue wear and tear, to renovate old or shabby chairs and suites and to weld together several odd pieces of furniture into an ensemble, or to link together several colours into a scheme.

There is no doubt that the use of loose covers is an economical necessity, they protect the furniture on which they are used from dirt and from general wear and tear. Some housewives may consider it foolish to buy a carefully chosen suite of furniture and then cover it—but if loose covers are used from the beginning, the actual upholstery never becomes dirty or worn, thus prolonging the life of the chair. If a suitable material is chosen such covers are easily washed, otherwise they will need cleaning from time to time. When you are tired of them it is much less expensive to buy new covers than to invest in new furniture. Most housewives

like to have two sets of covers—one for use during the winter months and another set for the summer. There is a lot to be said for this idea. It is surprising how tired one can become of even the most perfect colour scheme when it is lived with month after month. A different set of covers will completely change the character and appearance of a room without the necessity and expense of redecorating. Whereas in winter the object is to make a room look as warm and inviting as possible, covers which do this will almost certainly have the opposite effect in the summer months; but a change of covers, for instance, cool coloured linens, will give the room a dainty charm for the summer months. In some of the very modern styled houses and bungalows the frilled covers tend to look fussy, and because of this, many people have taken a dislike to loose covers. However, this can be overcome by making covers of a plain, tailored type; these are no more difficult to make than those finished with frills, and seem better to suit the lines of modern furniture. Whether frilled or tailored covers are chosen they should always match in style the pelmet or valance used at the window, especially in the case of a smallish room—for instance, with plain tailored covers, a plain flat pelmet.

Selecting Fabrics: One of the most important points in making covers is the careful consideration given to the selecting of the material. As with any other soft furnishings it is vitally important that the colour should be seen in both natural and artificial light. Many shops and stores are now lighted with fluorescent lighting, which sometimes tends to completely alter the colour values of fabrics. It should also be remembered that the design, when the fabric is used for making loose covers, will be seen both horizontally and vertically and that the shape of the arms and back of the chair may still further break up the pattern.

Unless a cover is to be used on a very large suite of furniture the smaller patterned materials are usually the best choice; a large patterned material can be very wasteful because it may be necessary to buy considerably more material than of the small patterned type to enable the pattern to be matched. The beginner especially should try and choose a small all-over design or even a plain fabric. Obviously, the housewife will want to make sure that the chosen material will wash or clean well. Most of the materials now sold are guaranteed colour-fast, but when buying a cheap fabric the question of fading should always be borne in mind; if a cheap material is purchased its quick-fading properties may make the saving in cost a false economy. Most furnishing fabrics are bought to last several years and it is therefore generally worth while paying a little extra and obtaining a well-known brand.

Another important point related to the quality of materials is that the better known weavers employ the most skilled of commercial artists to design their fabrics, and these are designed especially to fit in with modern homes and furniture. Although you may have little or no knowledge of art and design, you are less likely to tire of a well-designed fabric than you are of those of mass-produced printed designs. Soft furnishing materials are available in a variety of widths, but

when making loose covers a 30-in. wide material is generally the most economical size for cutting out, and also is the easiest width to handle.

There is a good variety of materials, all of which are equally suitable for making chair covers; cretonne, linens, chintzes, casement cloth, furnishing sateen and taffeta, folk weaves, furnishing felts and many of the new mixture fabrics—in fact any material which is firm in texture, does not fray or stretch too much, and will wash and clean well, is suitable. The beginner is well advised to avoid the choice of loosely woven, or easily frayed fabrics, although the more experienced may wish to tackle them, in which case it will be necessary to line each part of the cover with cheap furnishing sateen before the parts are finally assembled. For the average needle-woman a good quality cretonne is probably the ideal choice. This material is obtainable in a great variety of design, in many colours to fit into any scheme; it is easy to handle, to cut out and to sew; and while it will not crease easily, it does stand up to a great many washings. Linens are also very durable and these give excellent wear, besides looking fresh and colourful. It may be that the room has patterned wallpaper, curtains or carpet, in which case a plain, coloured cover will be needed to complete the colour scheme. A casement or rep chosen in one of the darker colours will make an excellent choice and can be dressed up by using coloured binding or piping along the seams.

If something very inexpensive is wanted the budget-wise housewife should consider the use of crash; this is a cheap linen fabric which is sold in a variety of colours from near cream to quite a dark brown, it is firmly woven and generally used for embroidery purposes. It will, however, make up into most attractive hard-wearing loose covers, especially with a brightly coloured piping finish. There are many coloured cotton prints which are suitable for covers for bedroom chairs, but these of course will not stand up to really hard wear for use for larger covers.

Estimating Amounts of Materials Required: Having selected the material the next step in the making of a cover is to estimate the amount of material required. When calculating this there are several points which must be considered. First it is absolutely necessary to estimate separately for each chair, but—as a rough guide to enable the possible cost to be worked out—a settee measuring 4 ft. in length will require somewhere about 12 yd. of 30-in. wide fabric, while an average size arm-chair will need some 7 yd. of 30-in. wide fabric. These amounts have been calculated to allow for a lightly gathered frill measuring 3 in. to 4 in. in depth, at the bottom of a chair or settee. If a box-pleated or more tightly gathered flounce is required, extra material will have to be allowed for. These amounts have also been estimated, assuming that a small all-over pattern is to be used, which can be cut just as it comes. Should a material with a large pattern be chosen this will have to be cut so that the chief feature of the design comes in the middle of the seat, in the middle of the cushion (if any), the middle of the back of the chair, and over the top of the arms, so it will be seen that quite a considerable amount of extra material may be necessary with a large-patterned fabric.

Equipment: The equipment necessary for making loose covers consists of a pair of large cutting-out scissors, a pair of small sewing scissors, some long, strong steel pins, a piece of tailor's chalk, a tape measure and some large sheets of strong paper for pattern-making.

Chair Scarves: Should it seem unnecessary to completely cover a recently upholstered suite, a smart and economical alternative is a set of chair scarves as shown in *Fig. 157*. These scarf covers are both quick to make and practical in use. They are easily removed in a moment for washing or cleaning and suit any type of chair or settee. Several sets can be made to give a room a change as often as you feel like it.



Fig. 157.

A set of scarves for a chair or settee consists of three pieces; the main chair cover and two arm covers. Commence by carefully measuring the chair. Starting half-way down the back of the chair, measure up and over the top, down the inside back, along the seat and over the front to the bottom edge of the chair (as illustrated in *Fig. 158*). To this measurement add 8 in. for the tuck-in. Measure across the widest part of the seat to determine the width of the cover. For an average-sized arm-chair the measurements should be 81 in. by 18 in. For the arm pieces, measure from the back of the chair to the front edge of an arm (*Fig. 158*), then from the seat up and over the arm to within four inches of the bottom edge of the chair and add 8 in. to this measurement for the tuck-in. Cut out one main piece and two arm pieces, taking care, if using patterned material, that the pattern runs the same way on all pieces, and is nicely centred on the back and the seat. Turn up and stitch a $\frac{1}{2}$ -in. hem around all edges. Add 3-in. upholstery fringe to both short ends of the main piece, and to one short end of each arm piece.

LOOSE COVERS

To fit these covers spread the main piece over the back of the chair, with one fringed edge hanging a few inches from the floor, and the other end inside the back of the chair. Hold the front fringe firmly in place, smooth the surplus material back and tuck it in between the back and the seat. Place the arm pieces over the arms with the fringe hanging on the outside of the chair, and press the surplus well down between arm and seat.

Measuring for a Loose Cover: To measure an arm-chair or settee of average shape and size study *Fig. 159*: this shows the necessary measurements which must be taken, and these are added together to arrive at the overall amount of material

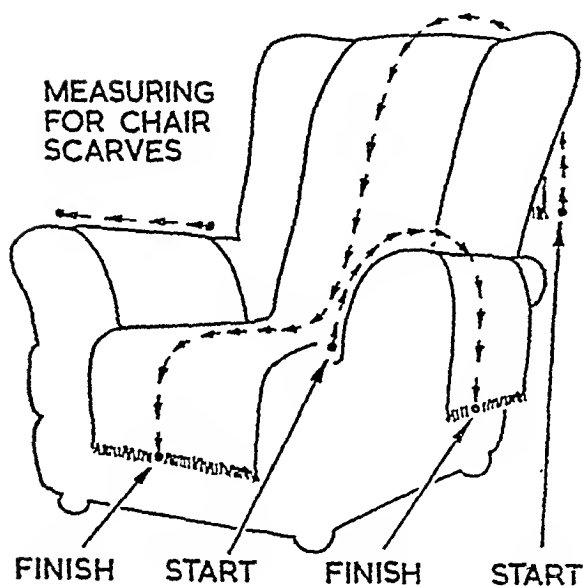


Fig. 158.

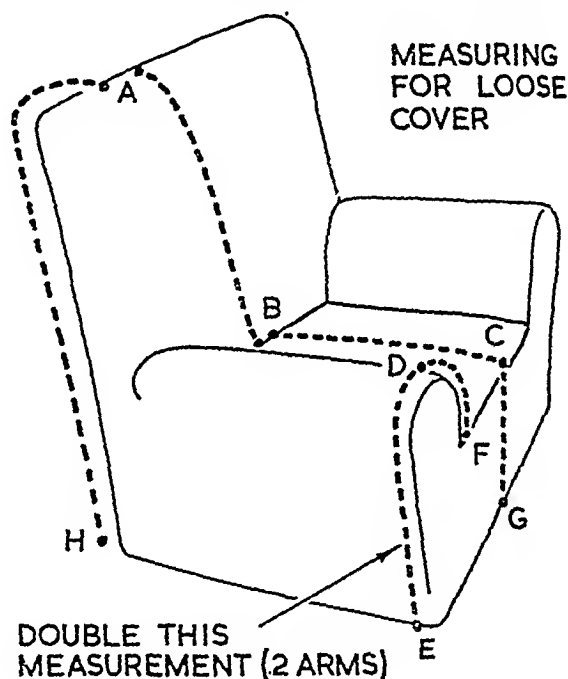


Fig. 159.

required. Start by placing the tape measure over the inside back of the chair in the centre of the back from (a) to (b) (*Fig. 159*), and add 6 in. to this measurement for the tuck-in. Next measure from the outside back, again in the centre (a) to (h), and add 3 in. for turnings. Measure one arm from (e) to (d) to (f), and add 6 in. for tuck-in plus an extra 3 in. for turnings. Double this measurement to arrive at the total for *both* arms.

For the frill or pleat around the bottom of the chair, allow twice the measured circumference of the chair by the depth of frill required (about 4 in. is usual). Next measure from (g) over (c) and back to (b), add 6 in. for tuck-in and 3 in. extra for turnings. Total the measured lengths to arrive at the total length of fabric required.

Pattern-making: Prepared patterns for most chairs and settees of standard shape and size may be purchased locally, and if you decide to use these, it will be necessary to fit the pattern on the chair before cutting out, as the two chairs of a suite may vary slightly in size. The pattern for the back and seat of the chair will probably be a half-pattern, that is to say it will be necessary to turn the pattern over to cut the other half of the back and seat piece. Measure the chair and make a chalk mark at the exact centre of the back; fit the straight edge of the pattern



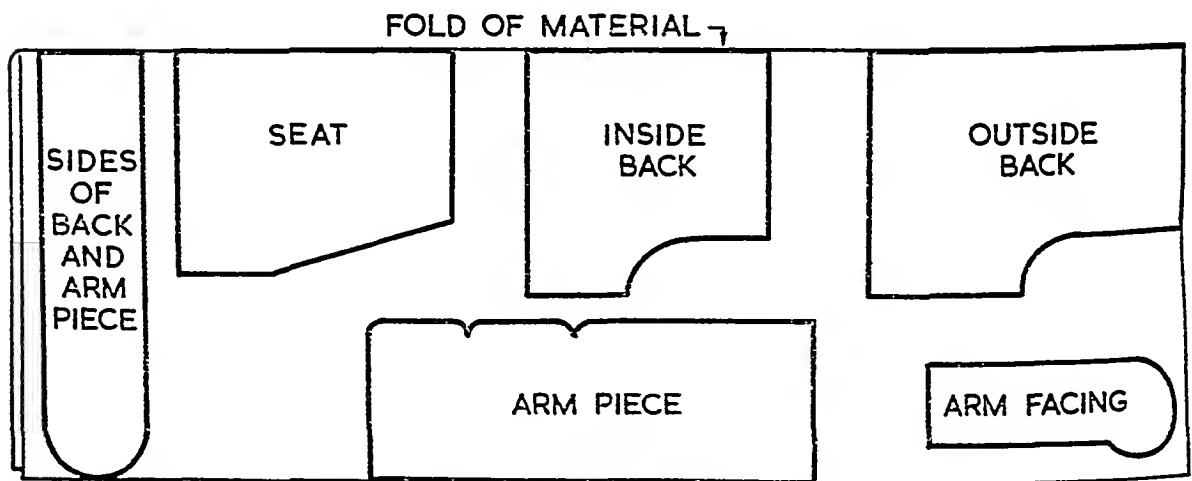
Fig. 160.

against this mark. If the pattern is not large enough or is too large (see *Fig. 160*) it will be necessary to add or deduct the necessary amount to adjust any difference from the straight edge of the pattern. Having made quite certain that the pattern is a perfect fit, place the pieces on the fabric, making certain that the design is evenly balanced on each part and, if the fabric is not reversible, that the pattern for the second arm has been reversed. Pin the paper pattern in place on the material and cut out, allowing generous turnings. If the chair being covered is not of a standard size and shape, there are two methods by which the cover can be cut out. The most professional method is to cut and fit the fabric on the chair, but the beginner will be best advised to make a paper pattern. The illustration (*Fig. 161*) shows the basic pattern parts likely to be required for a loose cover to fit

a small arm-chair. Cut the shapes out in stiff paper, making each rather larger than will be required. Pin each piece of the pattern on to the chair, making any adjustments necessary, until you have a perfectly fitting pattern for the particular chair being covered—remembering to allow ample turnings for all seams and a 6-in. tuck-in at the back and both sides of the seat of the chair. This is most important to ensure a well-fitting cover which will stand up to the strain of wear; if insufficient turnings or tuck-in are allowed the seams are strained every time the chair is used and the cover will quickly wear out. When you are quite satisfied that the cover fits well, cut all the pieces to shape from the fabric, place them right side uppermost on the chair and pin or tack them together. Take plenty of time over this part of the work as only in this way can a smooth-fitting cover be obtained. Remove the cover from the chair in one piece; carefully unpin and turn all the parts and repin a seam at a time so that the turnings are on the wrong side of the cover, ready for sewing.

Cutting a Cover Without a Paper Pattern: Although this method requires greater care and more skill, it gives a more professional finish to the cover than one made with a pattern. It is not really difficult if care is taken to cut the work in the right sequence. The illustrations in *Fig. 162* show the various stages of cutting a cover direct from the fabric without the use of a pattern. The first step is to measure across the back and the seat of the chair to find the exact centre, and with this marked, a line dividing the chair in half should be drawn with tailor's chalk. Check this line at various points with a tape measure to ensure that it is accurately marked. With this done, take the length of material, fold it in half lengthways so that the two selvedge edges meet together with the wrong side of the fabric outside, and press or pin so that the material will stay folded exactly down the centre.

Beginning with the inside back of the chair, place the fold of the material along



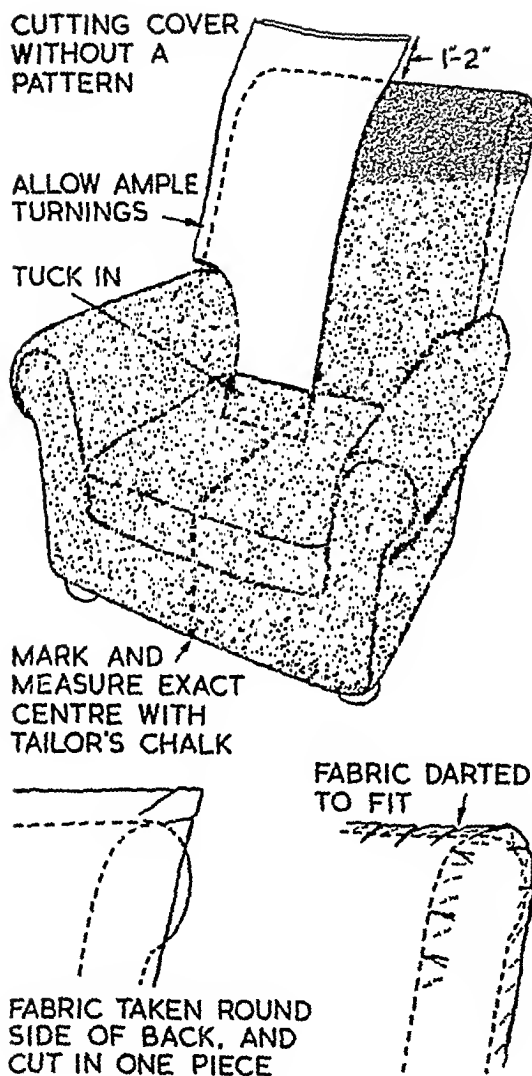


Fig. 162.

the chalk line. The upper cut edge of the material should protrude 1 in. to 2 in. over the back to allow for ample turnings, and the exact amount of the turnings required will depend upon how easily the material frays. Test the width of the material against the back of the chair; with most smallish arm-chairs it will be sufficient to go round the side of the chair back (see Fig. 162). If this is the case, raise the upper edge of the material to allow it to cover the top thickness of the back of the chair. In the finished cover the seam will then run along the top edge

of the outside back of the chair. If, however, the chair is of the 'overstuffed' type or has a square back, it will be necessary to cut separate pieces for the sides and top of the back—in this case cut the main pieces first.

Having pinned half of the inside back into position, tuck the material well down between the seat and back of the chair. Never try to skimp this part as it is essential to a well-fitting and hard-wearing cover to have sufficient tuck-in to take the strain on the seams when the chair is in use. Having allowed ample turnings and tuck-in, cut off the length of material. Next, unfold the piece and pin it all round to the inside back of the chair, allowing 1-in. to 2-in. turnings, and cut to shape. Leave the back piece pinned to the chair.

If the back piece curves over the sides and top of the back, it will be necessary to make several small darts to give a smooth fit, and these should be folded and pinned as shown in the illustration (*Fig. 162*). Continue by taking the folded length of material and place it on the seat of the chair from back to front with the folded edge against the chalk line. Tuck the top edge in at the back of the seat so that it meets the tuck-in of the material pinned to the back. Bring the length of material from the back of the seat, over the front and down to the lower edge of the chair, before cutting it, and pin it in position. Smooth the material over the seat towards the arms and push the edges down into the crevice between the arm and the seat of the chair. If the width of the material does not allow sufficient tuck-in between arm and seat it may be necessary to add strips of material along the sides of the seat. Make darts at the corners of the seat, in the same way as made to give a smooth fitting to the back.

Unfold the remaining material, place it over an arm of the chair, tucking the end in between the seat and arm to allow sufficient for tuck-in, bring the material up and over the arm, carefully pinning it to the shape of the chair and continue in the same way down the outside of the arm to the lower edge of the chair. Cut to shape, darting where necessary to give a smooth fit. The second arm piece should be fitted, cut and pinned in the same way. Refold the remaining material and pin the fold of the material to the chalk line down the outside back of the chair. Cut the outside back piece to length to extend to the lower edge of the chair at the back, remembering to allow ample turnings. Pin the remaining fabric to the fronts of the arms and the cut arm facings.

Removing a few pins at a time, securing the parts of the cover to the chair, pin the pieces of the cover together at the seams, tack carefully and remove from the chair. It will now be necessary to refit the cover on the chair, marking with chalk the position of the openings necessary to permit easy removal of the cover. At this stage the cover should be pinned so that the turning allowance is on the wrong side of the work, ready for sewing.

In addition to the parts mentioned, a gathered or pleated frill will be required. For this, cut a strip of material at least twice the circumference of the chair by the depth of frill required, plus 2 in. to 3 in. for turnings.

Sewing the Cover: The separate pieces of a loose cover are more easily sewn together if the work is tackled in the correct sequence:

- (a) Join the lower edge of the inside back to the back edge of the piece for the seat.
- (b) Join the lower inside edge of each arm piece to the side edges of the piece for the seat.
- (c) Join the inside edges of the arm pieces to the lower outside edges of the back piece, covering the front of the back of the chair.
- (d) Stitch the darts in the rounded parts of the back and arms, and the front corners of the seat piece.
- (e) Join the facings of the arms to the front edges of the arm pieces.
- (f) Join the outside back edges of the arm pieces to the edges of the piece covering the outside of the back of the chair.
- (g) Join the top of the inside back piece to the top of the piece covering the outside of the back.

Note: Remember to leave openings for plackets where necessary.

The seams should be stitched on the wrong side of the material. Seaming should be done strongly as the seams take a great deal of the strain in use. It may be necessary when going over curved pieces to slash the turning allowance at intervals so that the seams will lie flat when the cover is made, but care should be taken not to make the slashes too near to the seams, or this may weaken them. In addition to being strongly sewn the seams must be made as flat as possible. When joining straight edges an ordinary plain seam is best and the following method of pressing should prevent any of the stitching from showing on the right side of the material. As each seam is finished it should be pressed flat on the *inside* of the cover. After firmly stitching the seams the turning allowance may be trimmed down to $\frac{1}{2}$ in. Press the seams closed again after trimming, then open them out flat and press them open again. In this way the seam should be practically invisible when the cover is on the chair. If the material being used is of a fairly firm weave which is not likely to fray, it is not really necessary to do anything further to the seams. If the material is a rather loosely woven one, which may fray easily, it will be best to oversew the edges of the seams to strengthen them. In the case of an expensive material fraying seams may be dealt with by binding the edges of them with narrow bias binding.

When joining a facing to a full part, such as the front of the arms, the facing pieces of the arms should be lapped to the full pieces. To do this press the turning allowance of the facing on the wrong side of the material and keep the shape of the facing accurate. Gather the edges of the full piece to fit the facing piece—making sure that the gathers are evenly spaced round the edges. With the right side of the material outward, pin or tack the seams of the facing piece to the gathered piece. Secure by hemming or machine stitch close to the folds of the seams.

With all the pieces joined, try the cover on the chair, making certain that the lower edge all round is of an even distance from the floor. If a gathered frill is

to be added, turn up and stitch a small hem along one edge of the frill\ engh. Gather the top edge of the frill to fit exactly the bottom edge of the cover. Remove the cover from the chair, and press a turning along the bottom edge. Place the gathered frill under the bottom edge of the cover and hand-sew or machine-stitch two rows of stitching as near the fold as possible.

Additional Cutting for Covers for Large Chairs: Covers for very large chairs or for chairs with wide backs and arms may need a few extra pieces in the cover.

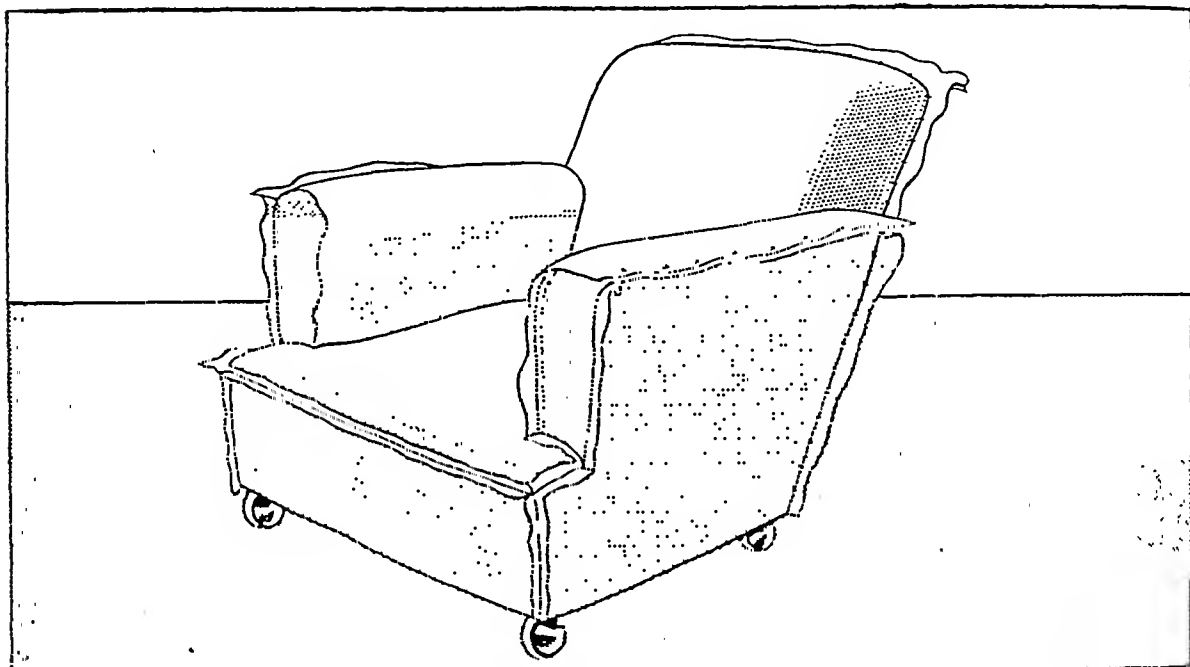


Fig. 163.

This will apply specially to squared types of chairs. *Fig. 164.* shows how the squared arm and back are fitted with extra strips which run along and down the arms, and across the back of the chair. If the arms and the back are straight, the covers of these parts may be cut in three pieces. One piece will run up the arm and along the top of the arm to the back of the chair; a second piece will run from the top of the arm, at the side of the back, up and over the top of the back of the chair, down the opposite side of the back to the top of the second arm. A third piece will run up the front of the second arm and along the top of the arm in the same way as the first piece. These extra pieces should be cut on the straight of the fabric and the main pieces darted slightly where necessary to make them fit exactly to the straight pieces.

wing chairs is no more difficult than covers for an ordinary arm-chair. The main parts of the cover are cut and fitted as previously described; an additional two pieces will be required for each wing, one for the outside and one for the inside. These are cut in the same way as arm pieces, but the fitting of the curved seam is sometimes rather difficult and will require careful fitting. Shape the wing-covering pieces by slashing the edges carefully, at the same time taking care to keep the slashes well away from the seam.

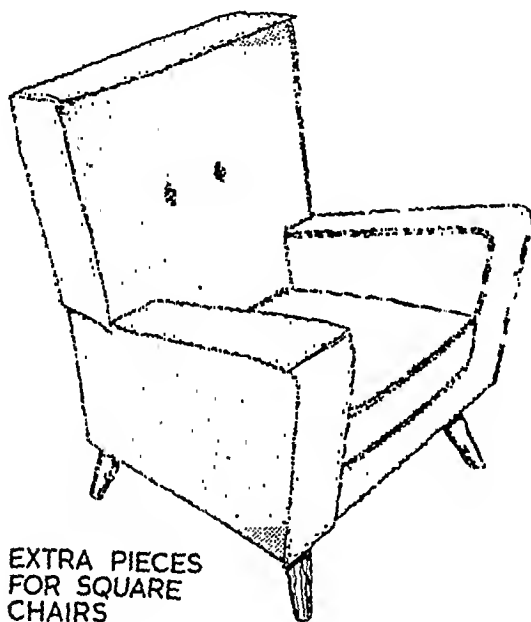


Fig. 164.

When the front of the arm of a chair is shaped to any extent the shapes are called 'scrolls', and these are cut as additional pieces to the parts for the arms. The easiest way to make accurate scroll pieces is to cut a length of material to an oblong shape, making it quite a bit larger than the front of the arm of the chair. Pin this oblong of fabric to the scroll, then with a piece of tailor's chalk carefully mark out the outline of the scroll by feeling through the fabric. Cut to shape, allowing plenty of extra material for turning. Press the turning over on to the wrong side of the material, slashing the edges of the curves so that the edges lie perfectly flat. The scroll facings are then pinned to the front of the arm pieces and it will probably be necessary to ease the edge of the arm pieces slightly to make them fit neatly to the scroll facings. This can be done either by making several small darts, or by slightly gathering the edges of the arm pieces.

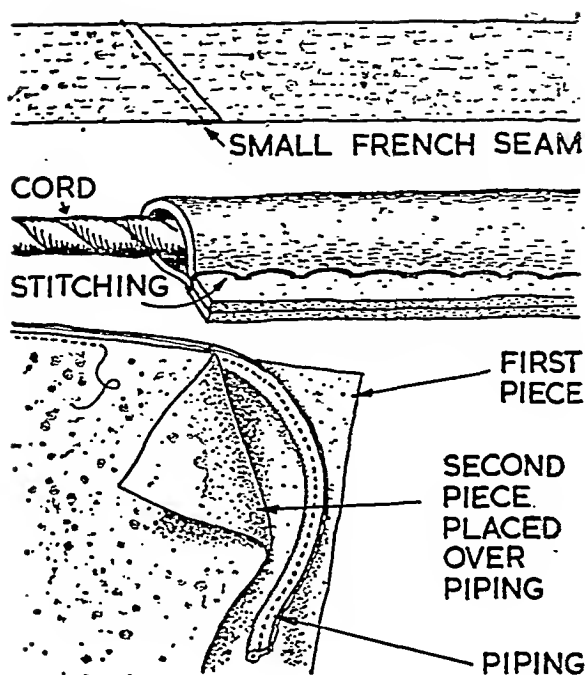


Fig. 165.

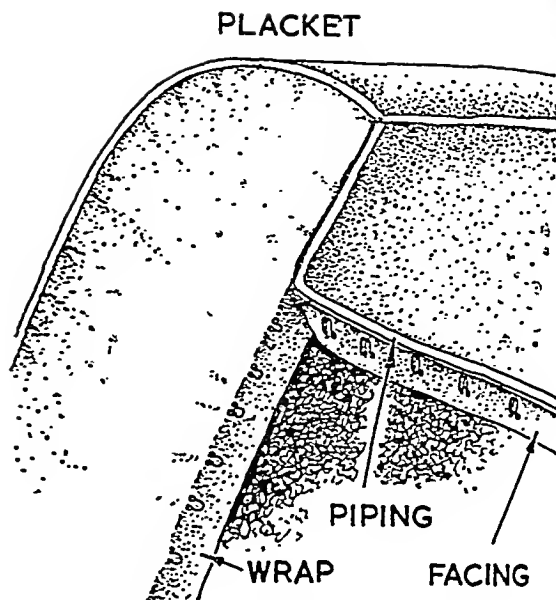


Fig. 166.

Piped Covers: Not only does piping give a really professional finish to a loose cover but it also allows for the introduction of a second colour. With a cover of a patterned fabric the piping should be a plain one, in the darkest colour of the material. On a plain fabric a contrasting colour to the main material should be chosen for the piping. A great advantage in piping a cover is the extra strength and protection it gives to the seams. A piped cover will last much longer than one with plain seams as the cord takes most of the friction in wear. As the actual piping takes quite a lot of preparation and can only be done by hand, it is best to make the piping before commencing to cut out or fit the cover.

Start by shrinking the piping cord. To do this place it in a pan of boiling water and boil it for a short while. Remove the cord and allow to become quite dry before covering it. If a shrink-proof cord is purchased it will not be necessary to boil it. The piping cord is covered with strips of fabric which should be cut on the true bias of the material. Cut strips of material $1\frac{1}{4}$ in. to $1\frac{1}{2}$ in. wide and join them together, with a very tiny seam, to make a continual length. Press each seam out as flat as possible and place the cord on the strip of material lengthways. Double the material over the cord and tack the two edges together as near as possible to the cord, without actually stitching the cord (*Fig. 165*). Use a matching coloured thread for this as it may not be possible to remove the tacking cotton after the piping has been stitched in position. The piping can be inserted in the

cover in two ways (*Fig. 165*). For the first method, unpin the parts of the cover, and place one piece at a time flat on a table, with the right side of the material uppermost. Tack the prepared piping along one seam edge with the cut edges pointing outwards and the cord edge inside the seam line, as shown in *Fig. 165*. Place the corresponding piece of the cover over the piped piece and tack them altogether close to the cord—finally stitch the seams along this line. Continue working all the piped seams in this way until the cover is completed.

The second method of attaching piping consists of pinning the cover, wrong side out, on to the chair. Undo a portion of the seam at a time, insert the piping and tack it into place. This may seem to be a rather slow way of working but it does allow the worker to see how the cover is progressing and avoids the possibility of any difficulty in assembling the pieces of the cover together. When all the seams have had piping inserted, and have been retacked, remove the cover from the chair and stitch the seams in the usual way.

Whichever method of inserting the piping is chosen there is a definite sequence in which the work should be done and by following these the home needlewoman should have no difficulty in forming neat corners and curves, to produce a perfectly fitting cover. The sequence is as follows.

- (a) Insert the piping round the scrolls or arm facings.
- (b) Along the join of the seat.
- (c) Along the top edge of the back.
- (d) Make up both arms.
- (e) Make up the back.
- (f) Pipe the outside seams of the back and arms.
- (g) Join any unpiped seams to complete the cover.

If there are any thick corners, it is as well to back-stitch these firmly by hand to give added strength to the cover.

Plackets on Loose Covers: As it is essential that a loose cover should fit well and look unwrinkled it will be necessary to make plackets so that the covers may easily be removed to wash or clean them. The plackets can be fastened either by zip fasteners or by press studs or hooks and eyes. Generally a placket is needed down one of the outside back seams from the top of an arm to the lower edge of the cover, but some needlewomen prefer to make the placket down the centre of the outside back piece of the cover. The extent and number of plackets necessary in any cover will depend on the shape of the chair. Stitch the upper part of the seam in the usual way. Turn in a narrow turning down the rest of the seam and face this with a straight strip of material, which should be about 2 in. to 2½ in. wide. Tack the strip in position and stitch down the inner edge of this facing to give a neat finish. With a second piece of facing material make a wrap about 3 in. wide on the corresponding opposite side of the placket opening. This is shown in *Fig. 166*. The fastenings are then sewn along the edges of the placket.

Box-Pleated Flounces: Some of the heavier materials may seem unsuited to a gathered frill, as does the use of frills in some rooms. In either case a box-pleated flounce will probably be a suitable finish for a cover. A strip of material, approximately three times the finished circumference of the chair, will be needed and this strip should be the required depth, plus 2 in. to 3 in. for turnings. The full length of the strip can be obtained by joining short strips of material with narrow seams. The strips should be cut across the fabric from selvedge to selvedge. The pleats must be perfectly even and this will entail accurate measuring and pinning before stitching. Before commencing to form the pleats, take up and sew the hem, but leave the top edge of the length of fabric unstitched to form the pleating.

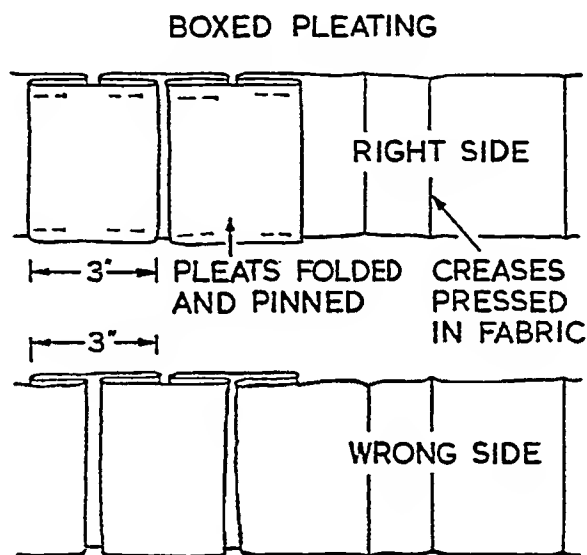


Fig. 167.

With this done, place the strip of material flat on a table. The width of the pleats may be varied according to individual requirements, but generally a pleat of 3 in. to 4 in. in width looks most effective. Using a ruler, and a piece of tailor's chalk, carefully measure the top edge of the material, marking it at 3-in. intervals (or whatever measurement has been decided on for the pleats). This is illustrated in *Fig. 167*, in which it will be seen that each pleat consists of *three* thicknesses of material. Commencing from one end of the strip, mark off the bottom edge of the fabric, at intervals, in the same way as the top, with chalk. Draw chalk lines from the top to the bottom marks, across the strip of material. The fabric should then be folded and a line pressed running on each mark from the top of the strip to the bottom edge mark. With this done the folds can then be brought together and pinned to form the box pleats as illustrated in *Fig. 167*. When the entire length of material has been folded, pressed and pinned, a tacking thread should be run

through the pleats, along the top edge, and as each pleat is tacked in position the pins should be removed. With this done the pleated strip should be pressed with a hot iron, the heat of the iron being adjusted to suit the type of fabric being pressed. Two cloths are used for the pressing—a clean dry cloth and another wrung out in warm water. Pressing only two or three pleats at a time, first cover the pleats with the warm damp cloth and press well. Remove the damp cloth and while steam is still rising from the pleats cover the pressed pleats with the dry cloth, then run the iron over it. In this way the steam is pressed back into the material and the pleats will stay in position for a very long time. Work all along the completed strip, then leave until the fabric is quite dry again. Place the top edge of the pleated strip to the bottom edge of the cover—if piping is being used inserting the piping between the two edges—pin into position, then lightly over-sew all the edges together, removing the pins as you work. This will serve as tacking and also as a finish to the edges. Finally machine stitch all round the edge of the cover. To finish press back the edges of the pleated flounce on to the cover.

Loose Cushions: Some arm-chairs and settees have loose cushions exactly fitting the seats of the chairs. When making a loose cover these cushions should have separate covers made in the same material as the main cover. Cut two pieces of material the exact size and shape of the cushions, allowing at least $\frac{1}{2}$ -in. turnings all round, and remember to centre the pattern of the fabric before cutting out. Cut a strip the thickness of the cushions and long enough to go right round the cushion. This need not be cut in one length; several small lengths can be used and these may be joined by narrow seams into a continual length. Join this strip to the two main pieces, covering the top and bottom of the cushion, inserting piping along both seams and leaving open the lower back seam for inserting the cushion. Neaten the edges of this seam and sew on fastenings.

Repairs to Loose Covers: Loose covers very often wear through at points where there is much rubbing—such as along the top of the arms or back of the chair—or it may happen that holes are burned with cigarettes. In either case, small patches can be made and if the material is patterned the patch will hardly show if care is taken to match up the pattern carefully. It is better in these cases to have an uneven edge to the patch rather than making it exactly square or oblong. If the fabric is of a plain colour, the piece for the patch should be cut several inches larger than actually required and the edges frayed out until the patch is the required size. Thread the frayed threads into a needle and darn them one at a time into the cover. This work is tedious, but if done carefully an almost invisible patch can be made.

It is a good idea when making a new cover to cut a large square of the material and to tack it inside the outside back of the chair. In use this will not show, but will be washed and cleaned with the cover and thus when it becomes necessary to repair the cover the piece of material used will have been washed to exactly the same shade as the cover. The top of the inside back and the tops of the arms

become soiled first and much wear and tear can be saved by buying a little extra material and making loose arm-caps and chair-back to match the cover. These are easily removed and washed without the bother and expense of laundering the whole cover, and if carefully matched for pattern, in use these will hardly show.

LOOSE COVERS FOR DIVANS

When a divan is used in a sitting-room it should be covered to match other covers used in the same room. Divan covers are very easy to make—being wide and flat they look best with a deep box-pleated flounce. As there is no shaping to this type of cover a pattern will not be necessary. Cut a top piece of material to fit exactly over the divan, then cut a long strip to make a 'collar' piece which runs round all the sides of the divan and which should be from 4 in. to 6 in. wide. Allow about 1-in. turnings along both edges of this collar piece which can, of course, be made up of several strips of material. The box-pleated flounce is attached to the lower edge of the collar and the top edge of the collar to the flat top piece. No plackets are necessary.

If piping is used the top and lower edges of the collar should be trimmed by piping them, and the collar made in four pieces so that a line of piping runs down at each corner. Being rather a large piece of furniture a divan covered with a patterned fabric may appear to dominate a small room. If this is the case, try making the top of the cover from a patterned fabric and adding the collar and flounce in a plain fabric which should pick up the darkest colour of the pattern fabric. Or, alternatively, try making the top and flounce in a plain fabric and the collar in a patterned fabric. Day covers for the pillows should be made in the same material, or in a contrasting colour, bound or piped with the fabric of the main cover.

The approximate requirement of material for an average-sized single divan is about 10 yards of 30-in. wide material, or about 6½ yards of 48-in. wide material.

COVERS FOR CHAIR SEATS

Covers for Dining-room Chairs: There are two types of dining-room chairs for which loose covers can be made—the Victorian type with upholstered seats and wooden backs, and the more modern type with lose seats, usually of leather. Both these are illustrated in *Fig. 168*. The old-fashioned type of dining-room chair can be made to look quite gay and fit into a modern room if it is fitted with a carefully chosen loose cover. Generally a printed linen, cretonne or gingham will be found to be the best choice of material, but as long as the design is small, and not too modernistic, almost any material can be used successfully. The old chair shown in the illustration (*Fig. 168*) has slightly curved wooden legs and back and the upholstered seat is covered with plush.

The illustration shows the cover is made with the seat and front in one piece

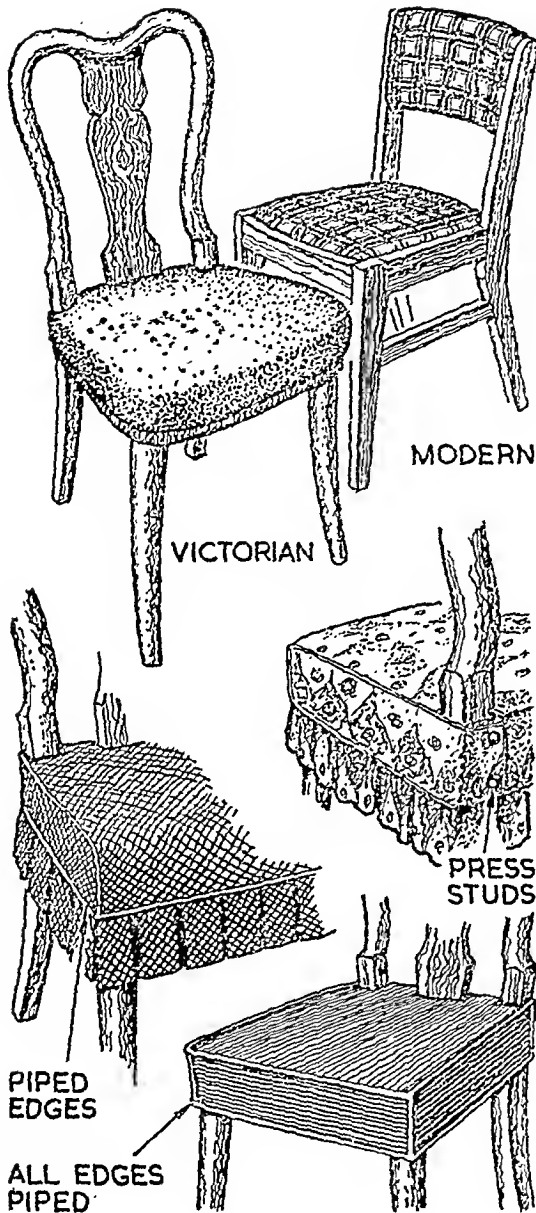


Fig. 168.

th strips of material cut for the sides and back, while the seams are piped with
 ing of a contrasting colour. Although, if desired, the seams could equally well
 piped with the same material. This type of cover is made to fasten with press-

studs at each side of the back of the chair and is finished with a 3-in. deep gathered frill, or alternatively, a box-pleated flounce could be used. As it will probably be necessary to cover several of these chairs to match, the most satisfactory method is to make a paper pattern from which all the covers can be cut. A large sheet of stiff paper will be required for making the pattern. Cut the paper to the exact width of the chair and long enough to go along the seat and down the front of the chair. Pin the straight edge of the paper to the bottom edge of the front of the chair. Smooth the paper up and over towards the back of the chair, pinning it carefully along the sides as you work. When the uprights of the chair-back are reached it will be necessary to cut two small squares out; this is to allow the cover to go round the uprights of the chair. If the edges of the seat are slightly curved it may be necessary to make small darts in the material each side. The paper should be pinned to fit exactly and the position of the darts marked with chalk on the paper pattern. Leaving the paper pattern pinned in position on the seat of the chair, cut three strips of paper to fit the sides and the back; these should overlap at the back corners for 2 in. to 3 in. to allow for the fastenings. Curve the front corners very slightly then pin the sides and the back on to the chair to ensure that they fit together accurately. The frill is made from a straight strip of material going round the two sides and the front of the chair with a second strip to go across the back. Both these strips should be cut twice the required finished length.

Having made an accurate pattern, cut out all parts of the cover from the fabric, matching the pattern as far as is possible at the seams, and if the motif is not of an all-over design, taking care to centre it on the seat. When cutting out allow turnings of about $\frac{1}{2}$ in. all round then prepare the piping cord to go round the seams in the same way as the piping for an arm-chair cover is prepared. The cover is assembled in the same manner as are large loose covers. Openings for the uprights of the back of the chair should be neatly bound with a narrow bias binding and the back corners turned over and stitched as shown in the illustration (*Fig. 168*). Attach press-studs to these corners.

When making covers for more than one chair, try the pattern on each chair before cutting out the covers, as the chairs may vary slightly in size. The second type of cover shown in the illustration (*Fig. 168*) is cut and made in very much the same way as the one described above, except that the seat is cut flat and the front cut separately so that the finished cover has a more square appearance. Although the cover shown is of a very plain and tailored style, finished with a narrow piping round the bottom edge, this type of cover could quite easily be made with a small gathered frill or box-pleated flounce, or the bottom edge could be finished with narrow furnishing braid or fringe. To complete a cover made without a frill or flounce, stitch 1-in. wide hems all round the bottom edge, insert a tape through the hem, and when the cover is in position pull the tape up tightly, tie and tuck the ends of the tape under the edge of the cover, so that they do not show. This will keep the cover smooth and prevent it riding up on the chair when in use.

The other chair illustrated in *Fig. 168* has a loose seat which can be lifted out. This type of seat is found in quite a lot of modern chairs, either straight-backed chairs or those with open arms. These lift-out seats are often made of leather-cloth and are apt to become rather shabby-looking after wear. Providing the webbing underneath is whole and firm, and the seat shows no sign of sagging, these chairs can be made to look quite fresh and new by giving them loose covers made to match the curtain material, or making the covers in a plain fabric which picks up one of the curtain colours. To make a paper pattern, place a large piece of smooth stiffish paper on a flat surface. Remove the seat from the chair and place it right side down on the paper. Fold the paper over the seat, and make darts and tucks where necessary to get a smooth fit; pin these and mark them with chalk. Remove the paper from the seat and cut out the pattern. Pin the darts and tucks into position, then try the pattern on the seat again and, when you are sure that it fits perfectly, cut out in material, remembering to allow $\frac{1}{2}$ -in. turnings at each corner and 1-in. turnings round the bottom edges. Neaten the edges at each corner and turn over the bottom edges to make a narrow hem. Run a tape through the bottom hem, place the cover on the seat and pull up the ends of the tape tightly, pushing the ends back under the cover.

Covers for Armless Chairs: Most of the modern type arm-chairs are sturdy-looking with deep backs and seats, but instead of the usual upholstered arms, the arms may be fashioned from metal tubes or from wood with the sides left open. This type of chair never looks quite right with a frill or pleated cover, so that if it becomes necessary to cover these chairs, the loose covers should be kept very plain and well fitting with just a piped edge as a method of finishing.

To make a cover for this type of chair, follow the general rules as regards measuring and pattern-making, but cut the inside back seat first. This can usually be cut in one piece, remembering to allow sufficient to tuck in between the bottom of the back and the seat. Continue by cutting the outside back, then the strip which goes over the top and down each side of the back to the top of the arms. This gives a boxed effect to the top of the chair. Add the front 'apron'—the piece which reaches from the edge of the seat to the bottom edge of the chair. The two side pieces are added next and these will have to be fitted round the arms of the chair. The best method of fitting the side pieces is to measure the amount of material necessary and allow 1 in. extra all round for the seams. Make a paper pattern from these measurements, place the pattern on the side of the chair and pull it well down between the arm and the side of the chair as far as it will go. Make a cut at the bottom where the arms are attached to the chair, again pull the material down, and with this as far as it will go, cut out enough to allow the pattern to fit round the arm at this point. Use the pattern to cut out the side pieces from the material. When the cover is stitched, the edges of these cut-out points should be bound with a narrow bias binding. Next, cut and pin the two small pieces which go under the arms, down to the sides of the chair.

Some chairs have small upholstered pieces on the arms. These should be cut last of all from small oblongs of material; fit them on to the upholstered arm pieces, and pin two or three small darts at the back and front edge. These two small arm pieces can be fastened with snap fasteners which should be placed under the arms of the chair. The main cover has a placket each side of the back from the lower edge to the arm of the chair.

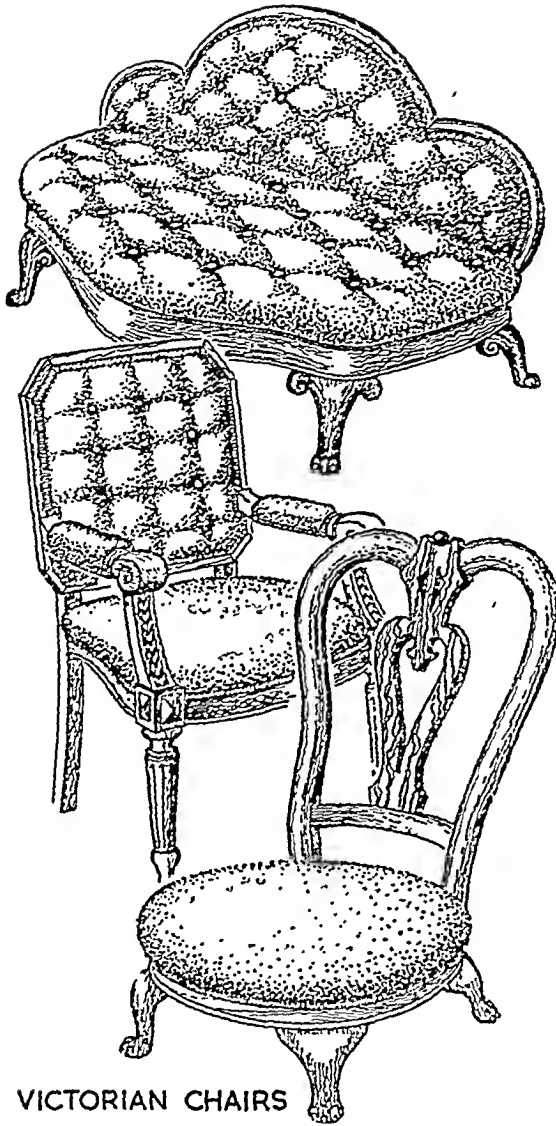
Covers for Occasional Chairs: Small Victorian occasional chairs are generally very comfortable and can make a charming addition to a room if covered to match the rest of the furniture. As these chairs are of various shapes and sizes, only general cover-making instructions can be given.

A paper pattern should be cut for each part of the chair. These can then be pinned on the chair and the various parts gathered, pleated or darted to give a good fit. Aim at giving the cover as few seams as possible. After fitting, but not before, stitch any seams outside where the opening will be most convenient and least conspicuous.

Two typical Victorian chairs and a small early Victorian settee are shown in *Fig. 169*. These Victorian pieces are usually solid and well made. The material chosen for the covers should be neat and attractive but not too modern; small floral designs or regency stripes are more in keeping with the shape of the chairs than are the geometrical designs so often used on modern fabrics.

To cover a small settee of this type, cut a piece for the inside back, then cut a part to fit the seat of the settee, being careful to cut the curved front accurately. Next, cut the outside back and a narrow straight strip which runs from one side of the seat up over the back to the other side. A second straight strip should be cut to run round the side and front of the settee; the upper edge of this where it joins the seat piece should be piped, while the treatment for the lower edge depends upon the condition of the legs of the settee. If these are of curved wood, solid and well made, the settee may look best with the legs uncovered. In this case, pipe the lower edge of the cover. If, however, the legs of the settee are ugly, a box-pleated flounce hanging from the edge of the cover and just clearing the floor will effectively camouflage ugly legs. The smaller of the two chairs can have the seat covered as described for a dining-room chair in addition to which a shaped cover should be made to fit the back of the chair and joined to the seat gathered along the inside back and seat edge.

The third chair, which has open arms, would look well covered in a figured chintz. The inside back and the seat could very well be cut in one piece, but it would be necessary to allow at least 3 in. as tuck-in between the seat and the back. As the front of the seat is wider than the back it will be necessary to make a small box pleat in the seat and back piece both sides of the tuck-in. This allows the extra fullness to spread out for the front of the seat and also for the top of the back. Three strips of straight material cut about 2 in. wider than the depth of the seat will be needed for the boxed apron sides. The fabric will need to be cut out



VICTORIAN CHAIRS

Fig. 169.

at each side of the inside back and at each side of the seat to allow the cover to fit over the arms and these cuts should have the edges neatly bound. The cover can open at each side between the base of the arm and the seat of the chair; a small pleated ruffle would look well trimming the lower edge of the cover or, alternatively, a bobble fringe in a contrasting colour should be used as a finish.

Covering Settees and Sofas: At first thought, making a loose cover for a settee, couch, or sofa may seem quite an undertaking. It will, of course, take considerably longer than making a chair cover, but actually is no more difficult than covering a chair. The general instructions for pattern-making, cutting out and assembling are the same, but there will be two, three or even four back and seat sections. The positioning of these is shown in *Fig. 170*. The most important thing to remember in covering a couch is that where the fabric has a large design, it must be centred, not once in the middle of the back and seat but in the middle of each back and each seat piece and, if loose cushions are used, in the centre of each cushion. It will therefore be seen that by choosing a striped fabric or one which has a small all-over design, not only will much trouble be saved, but also a con-

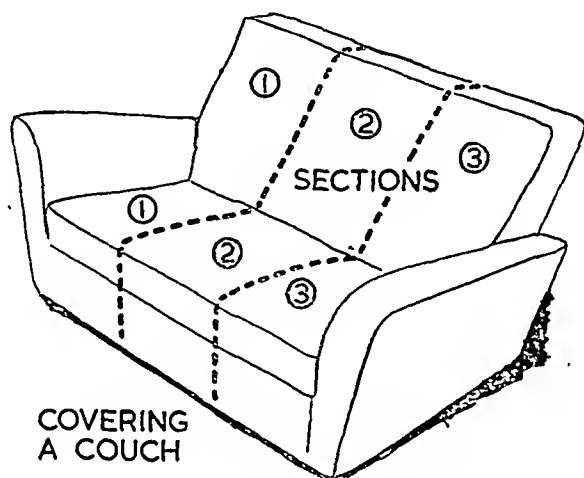


Fig. 170.

siderable amount of material. When assembling a settee cover, first join all the back sections and all the seat sections so that you have only one inside back, one outside back and one seat section to deal with. The seams used can be quite plain, and, if the pattern is carefully matched, almost invisible, or they can become a decorative part of the cover by being piped to match the other seams in the cover.

Covered Chair Pads: These add greatly to the comfort of small wooden chairs and stools; they are often used to give a little extra height or to introduce a note of colour. Pads of this type can be made in two ways. The small flat kind which exactly fits the seat of the chair or the larger square end mattress type which is known as a 'squab'.

To make an ordinary small chair pad begin by cutting a pattern in muslin the exact size and shape of the chair-seat. Cut a second pattern to match and stitch the two together round the edges, leaving one end open for stuffing with several thicknesses of cotton wool. The cotton wool should be of the upholstery type

which can be bought in rolls from most furnishing stores. When stuffed the pad should be about 2 in. thick and of an even thickness all over. If making a round pad, the inside layers should be a little smaller than the outer ones to give a flat edge to the pad. When the pad is correctly stuffed, quilt loosely backwards and forwards across the pad, taking the needle and thread through all thicknesses so as to keep the filling in position. The outer cover can be made of any suitable material. If the outer covers are to be embroidered, this should be done before the cover is made up; use the pad as a pattern for cutting the parts of the outside cover but allow 1 in. for seams all round. As these small chair pads will receive fairly hard wear the material chosen should be easily washed and of a hard-wearing type; loosely woven materials are not very suitable.

The pads are held in place on chairs by narrow strips of the cover material, or coloured tapes can be attached to the back corners. These strips can be tied in a bow or fastened with snap fasteners. If the edges of the pads are piped, the strips should be inserted before the seam is finished so that they will come on top of the piping, and this will prevent the edges of the pad from turning up.

If a really thick pad is wanted, the outside cover can be boxed by the addition of a 2-in. wide strip of material inserted between the top and the bottom of the cover. In this case both edges will require piping. The whole of the back edge of the cover is usually left open to allow for the easy removal of the pad when it requires laundering. When in use the two edges can be slip-stitched together or the cover can be made with small snap fasteners along the back edge. If there is any difficulty in obtaining upholstery cotton wool, carpet felt will make a good substitute, or an old blanket cut into pieces. Never use kapok for this type of pad as it will tend to grow lumpy with wear. Squabs are very firm mattress-like chair pads which are used to give height and comfort to a plain wooden stool or chair. They can also be put to good use in making comfortable seats from boxes or travelling trunks when used under a loose cover. Squabs of the type described above may also be used for covering window-seats. Large squabs or pads of this sort are best made by tufting them, and this consists of stitching through the inside covers and stuffing, at regular intervals, to prevent the padding moving about inside the covers. Leather tufts are best for this, and they are stitched in place with some strong but fine twine, using a mattress needle, which is a long needle that is pointed at both ends. For most purposes squabs are made with fixed covers, but if it is thought that tufts are unsightly on the outside covers they may be secured through the inside covers only, and the seat paddings placed in an outside cover made to be easily detachable for cleaning. The squabs are made from a pattern which is cut to the exact size and shape of the window-seat. If the seat is a long one it may be necessary to make two or three squabs in a set. The pattern is used to cut four pieces of material. When using the pattern for cutting the fabrics to shape, allow at least $\frac{3}{4}$ in. for turnings at each side. Two of the pattern shapes should be cut in strong cotton material and these are used for the

LOOSE COVERS

inside cover. The two parts for the outside cover can be cut from any suitable furnishing fabric. In addition to the four main parts required for each squab, eight strips will be required, one for each edge of the padded cushions. These should also be cut from the same materials as the top and bottom of the cover—that is four pieces in strong cotton material and four pieces in the outside furnishing fabric. A suitable width for the side pieces is 3 in., to include turnings, and

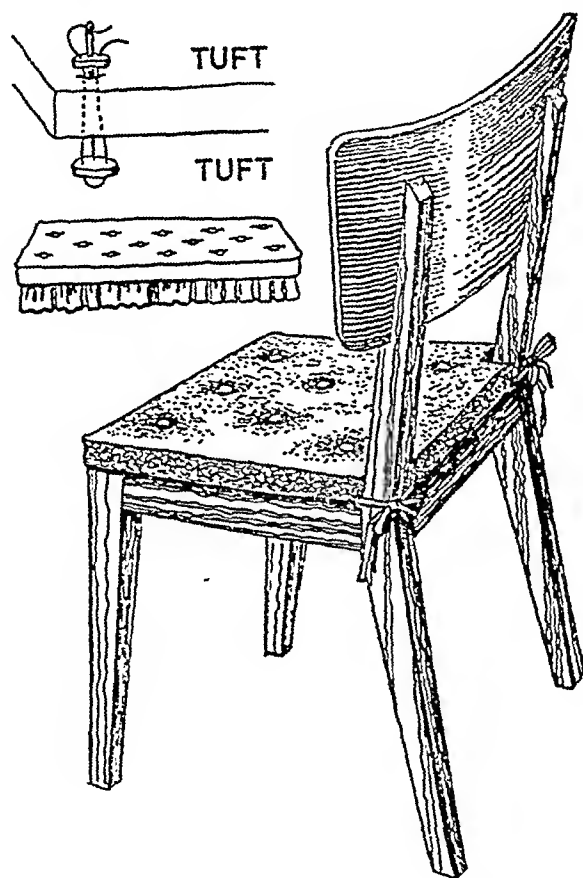


Fig. 171.

the length of each box side should be the same length as the ends of the main pieces, plus 1 in. for turnings. The seam line should be marked on each piece of the cover on the inside of the material with tailor's chalk and straight edge, at a distance of $\frac{1}{2}$ in. in from the edge of the material. The parts should then be pinned together, wrong side out, leaving one end open for the insertion of the padding. The parts are then seamed together in the usual way, using the chalk line as a guide to the rows of seaming stitches. Care should be taken to form neat corners where the upright seams meet those running round the main parts of the

seat. All the seams are stitched except one at an end of the pad to permit the stuffing to be placed in position. The padding material may be mattress filling and for this purpose the type of filling known as 'rugging' is ideal. The rugging should be broken up with the fingers into small pieces before stuffing the inside covers (turned right side out) and the casing should be filled as full and as hard as is possible. The stuffing should be pushed well into the corners and with this done the open seam should be joined up and the cushion beaten into shape with the hands.

The outside cover for a padded squab is made in the same way as the inside cover and the outer cover should fit snugly over the stuffed interior. The seams of the outer cover may be piped to give them additional strength and to improve their appearance. If the squabs are to be used on chairs a double length of tape should be stitched in with the seams at the two back corners of the squab; the tapes are then used to fasten the squabs to the sides of the back of the chair. The additional tapes are not necessary when making squabs for covering a window-seat. The opening of the outside cover may be sewn up or fitted with small press-studs so that it may easily be removed for cleaning. After testing the outside cover for fitting, remove it for the tufting.

The tufts used are small circles of leather which are stitched in place each side of the squab, as illustrated in *Fig. 171*. To determine the positions of the tufts, both sides of the seat should be marked out with tailor's chalk, making 6-in. squares on the covers. The illustration (*Fig. 171*) shows that each row of tufts is staggered on the adjoining rows. The tufts are stitched into place with a mattress needle shown in the illustration. This is threaded with strong twine and pierced through one of the tufts. The needle is taken right through the cushion, pierced through a tuft on the opposite side, re-inserted through the same tuft and brought back through the cushion into the first tuft as shown in the illustration (*Fig. 171*). The twine is pulled very tight and the ends of the twine should be very firmly tied off. With all the tufts stitched in place the outer cover may be placed in position and the padded squabs are then ready for use.

If the squabs are used for padding a wooden window-seat, a frill in matching material may be attached to the lower front edge of each of the padded cushions, as illustrated in *Fig. 171*. The frill may be a short one or it may extend to reach the floor. The material used for covering window-box squabs may be the same as the curtaining material, or if this has a large pattern it might be best to cover the squabs with plain material, picking up one of the curtain colours. The frill may be box-pleated or gathered as previously described.

CUSHIONS AND CUSHION COVERS

Materials for covers—fillings for cushions—openings. Cushion Pads: Feathers and pins—filling and finishing. Types of Cushions: Shapes and materials. Cretonne Cushion with a Pleated Frill: Pattern-making—cutting out—making a frill—finishing. Square Cushion from Striped Material: Making the pad—joining the parts—finishing. A Heart-shaped Cushion: Materials—treatment of edges—pattern-making—covering the pad—buttons and holes—valentine cushion. Plain Square Cushion: Covering materials—making the pad—covering—alternative methods—hand-painted cushions. An Oblong Taffeta Cushion: Use of piping—gathered edges. Pattern Brocade and Velvet Cushions: Materials and colours—making and finishing.

THE making of cushions gives great scope to the imaginative needlewoman. Cushions can do more than anything to add comfort to a room, and are the ideal way of introducing touches of bright colour to a colour scheme.

Cushion covers can be as original as desired, but at the same time they should be practical and useful. Their design, both in shape and the material chosen, should be in keeping with the rest of the room in which they are used. Almost any fabric can be used for the covers; oddments of chintz, linen, gingham, rich velvet, gleaming brocade, or bright felt are all equally suitable. Alternatively, a plain fabric can be chosen and the cushion decorated with a variety of coloured threads or wools. Again it is possible to combine two or even more materials in deep bands and to cover the seams with fancy braid. Several cushions of varying shades of one colour, piled together on a long couch or settee, will give a most attractive shaded effect to the colour scheme of a room. Several small cushions of novel shapes, made in bright felts, will make a fireside chair look very inviting on a cold day.

The very best filling for a cushion is eiderdown, of course, as this puffs out well and is very hard wearing. However, although eiderdown goes a long way, it is rather expensive, and many needlewomen will have to use a substitute. Feathers make excellent stuffing for cushions, but—if they are used—it will be necessary to make a feather-proof pad to fit under the cushion cover. Kapok is inexpensive, comfortable and has the advantage that it can be put directly into the outside cover, although many handywomen prefer to make a separate cushion pad filled with kapok, so that it is easily removed whenever the cover requires washing. Although cushion covers can be made with plackets these are generally inclined to gape in use, and the better and more popular method is to leave an opening, into which can be stitched one of the very light-weight zip fasteners used in dressmaking, or alternatively, to leave an opening which can be slip-stitched together after the cushion pad has been inserted in the cover.

Cushion Pads: When making a cushion pad it should be cut slightly larger than the outer cushion cover to ensure that the cushion will be plump and full when finished. If feathers or down are used for stuffing; the pad should be cut from feather-proof cambric or mattress ticking. When using feathers or eiderdown,

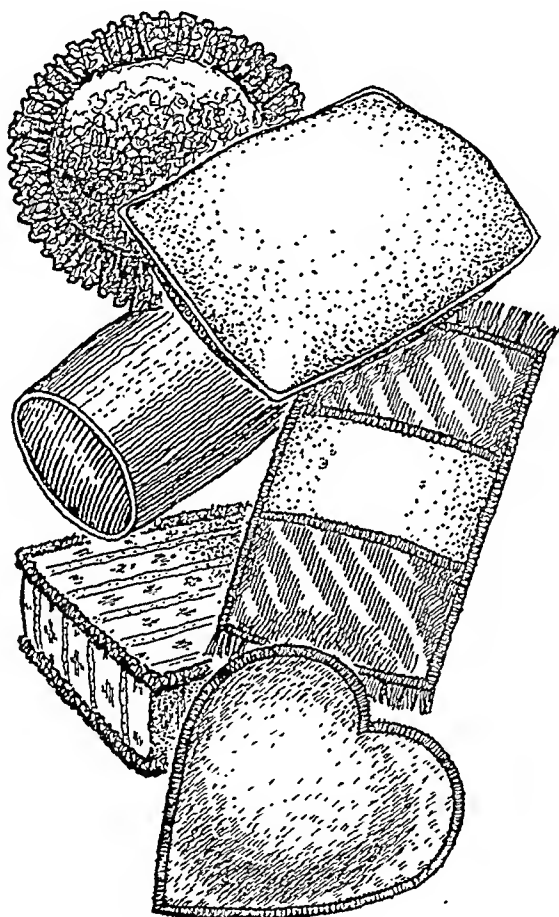


Fig. 172.

make as few joins as possible in the pad, and *never* use pins as the feathers will creep through the pin marks, when the cushions are in use. Machine the pieces of feather-proof cambric together with the shiny sides *facing*, leaving a small opening along one side, then turn cover right side out, and stuff it carefully. The pad should be filled well, but not tightly filled. Turn in the edges of the openings and machine or stitch across them several times.

Types of Cushions: Some are illustrated in *Fig. 172*. Various types of cushions are shown; these include round ones with frilled edges, and square and round shapes with piped edges. These latter are most suitable for making up in cretonnes, chintz, linens, gingham and printed cottons. Oblong and square cushions with fringed edges (*Fig. 172*) look well made up in the heavier materials such as brocade or

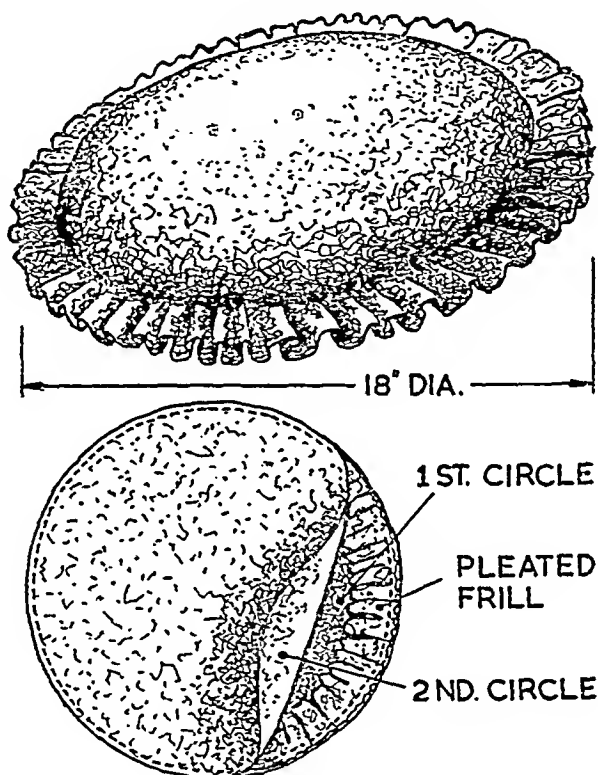


Fig. 173.

velvet, and two materials can be combined, for example taffeta or printed satin with a velvet band: all these cushions are of the flat variety. Also illustrated (*Fig. 172*) are boxed cushions and these are best made in heavy, firm fabrics.

Besides the conventional shapes there are a large variety of novelty cushions which can do much to brighten up a room. Almost any shape of cushion can be made, providing a suitable material is chosen—felt is an ideal fabric for these rather gay little cushions. Old nylon stockings cut into pieces make an ideal stuffing for these smaller cushions, being very light yet soft and comfortable.

Cretonne Cushion with Pleated Frill: This cushion, which is illustrated in *Fig. 173*, measures 18 in. across, including the frill, when finished. It requires about $1\frac{1}{4}$ yd.

CRETONNE CUSHION WITH PLEATED FRILL

of 30-in. to 36-in. wide material. The cushion pad for use inside this cover should be about 15 in. across.

Commence by cutting out a stiff paper circle with a diameter of 16 in. If grease-proof paper is used for making the pattern, it can be placed on the material and moved around until the design on the material is nicely centred on the paper circle. Pin the paper circle to the material and chalk round the outline of the circle with tailor's chalk. Never use a ball-point pen for marking round a pattern, as the ink may run or smudge and spoil the material. Cut the circle from the fabric, place it on the rest of the material, and match the design before cutting

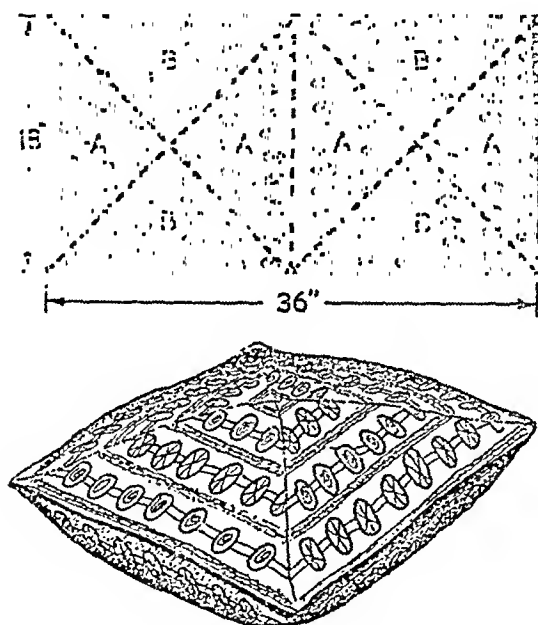


Fig. 174.

out the second circle. To make the frill, cut strips of material on the straight 2 in. deep and join them with a narrow french seam to make a joined strip with a total length of 3 yd. Press the strip well and sew a very narrow hem along one edge. Press the hem after sewing, then fold it into $\frac{1}{2}$ -in. pleats—pressing and tacking through the centre of the pleats until the complete length of the strip has been pleated. Tack the raw edge of the pleated strip to the raw edge of one of the circles, so that the right sides of the material are facing, then machine or stitch the pleat-strip and circle together, about $\frac{1}{2}$ in. from the edge, joining the pleated frill where the two ends meet. Press the edge of the pleat-strip well to ensure that it is quite flat, before placing the second circle over the first one, with the right

sides facing each other, making quite sure that the patterns are matched where necessary. The pleat-strip should now be between the two circles. Stitch the frill and both circles together—leaving an opening of 5 in. to 6 in. Turn cover right side out and press well. Insert the cushion pad and slip stitch the edges of the opening neatly together. If preferred press-studs may be sewn along the opening, instead of slip stitching it.

Although the cover of this particular cushion has been described as being made in cretonne, many other materials are suitable. It is not necessary for the frill to be of the same material as the two circles, or for both circles to be of the same colour. Many delightful variations can be made of patterned circles with plain coloured frills, or by combining patterned frills with plain coloured circles.

Square Cushion from Striped Material: A most effective cushion for a modern setting can be made from striped material of strongly contrasting colours; black and white, or red and white, are good choices. The materials required to make the cushion illustrated in *Fig. 174* are a length of striped fabric 18 in. by 36 in., two buttons, about the size of a half-penny, and an 18-in. cushion pad. Commence by making the pad as previously described. Place the length of striped fabric on a flat surface, making sure that there are no creases or wrinkles in the surface of the material. Carefully measure the long sides of the fabric and mark the exact centre of each. With a piece of chalk draw a line dividing the material into two 18-in. squares, and draw chalk lines diagonally from each corner of the two squares, dividing the material into eight parts as shown in the illustration (*Fig. 174*). Cut along all the chalk lines. Take the four pieces marked 'A' and join them with the points in the centre to form the front of the cushion cover. Join the four pieces marked 'B' in the same way, to form the back of the cushion cover. After joining the parts, trim and press all the seams as flat as possible. Place the back and front pieces together with the right sides of the material facing. Sew round three sides. Clip and trim the seam allowance at each corner, so that when the cushion cover is turned right side out, the corners will lie square and flat. Insert the cushion pad in the cover, turn in the edges of the open side and slip stitch them together. Sew buttons on at the centre points of the back and front to complete the cushion.

A Heart-shaped Cushion: A heart-shaped cushion can be both gay and amusing besides being a very practical shape from the comfort point of view. While instructions for making this cushion cover describe the use of felt, it would also look very lovely made in satin or taffeta, for use in a bedroom.

The materials required are a piece of felt 18 in. by 36 in. in a bright gay pink colour, some small pieces of red felt, 18 buttons $\frac{1}{2}$ in. in diameter, and a round cushion pad, which should be 13 in. to 14 in. across, as shown in *Fig. 175*. As felt does not fray when cut, this cushion is described as being made up so that the seam allowance makes an attractive edge finish (if a material which is likely to fray is used, sew very narrow hems around each piece before making up the

HEART-SHAPED CUSHION

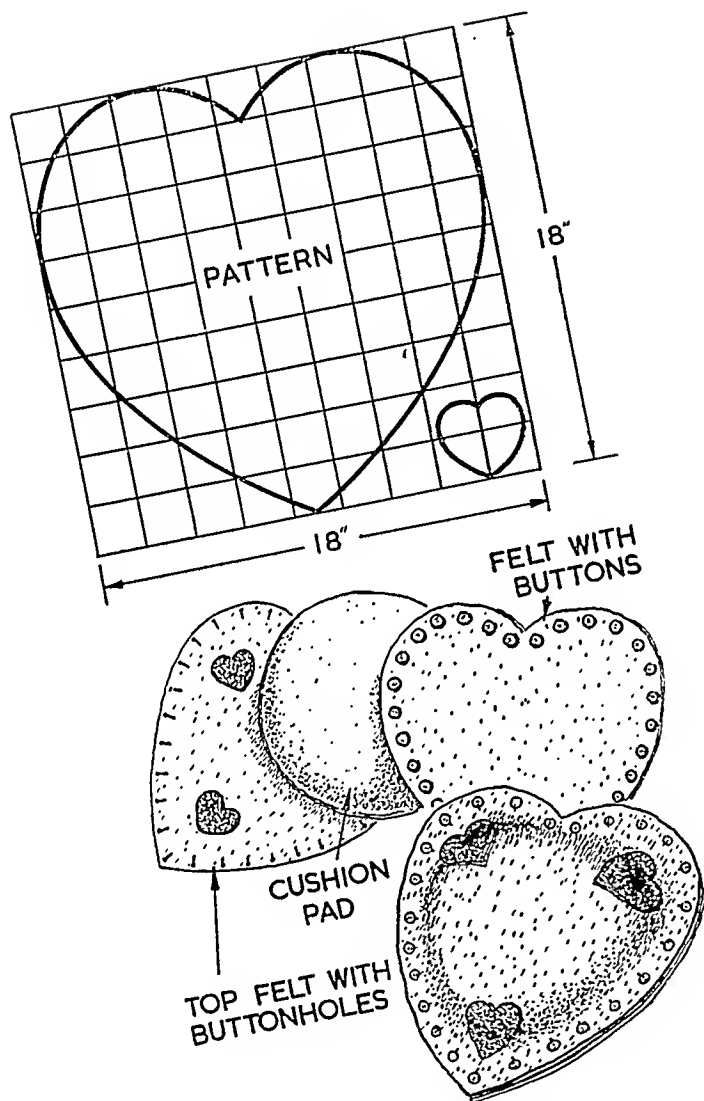


Fig. 175.

cushion cover). If pinking shears are used for cutting the felt, the decorativeness is still further enhanced.

Divide the length of felt into two 18-in. squares, then make a paper pattern from the squared drawing in Fig. 175, and use this to mark and cut out two large heart-shapes from the felt. To make the pattern, take a piece of paper 18 in. square, and rule it off in 2-in. squares; reproduce the lines in each square of the drawing in the corresponding square of the paper. Cut out two heart-shapes from

the felt squares, using pinking shears, and cut three extra small hearts from the red felt. Place these in position on the large heart-shape used for the cushion front. Pin or tack them in place and button-hole stitch round the edges.

Now place the back of the cushion cover on a flat surface, cover it with the cushion pad and put the front of the cushion in position on top; tack all the parts together round the edges, and with a piece of tailor's chalk, mark the position of the buttons on the back of the cushion cover—mark corresponding slits for button-holes on the front part of the cover. If the cover is being made from felt, the edges of the button-holes will not require stitching, but if other materials are used it will be necessary to button-hole stitch each of the slits. Cover the buttons with scraps of red felt. Pull the tacking thread from the cushion, sew the buttons on the back, then place the cushion pad between the front and back pieces of the cover, and button the front to the back. To make this a real valentine cushion, a length of lace could be stitched round the edge of the back piece before attaching the buttons. This method of buttoning the front and back of the cover together over a pad can of course be adapted to any shape of cushion.

Plain Square Cushion: Where curtains and covers are in patterned fabrics, plain square cushions in carefully chosen colours will give just the right finish to the colour scheme of a room. The cushions should be teamed to the draperies in the room by using colours which appear in the patterns of the furnishing fabrics. For instance, where the curtains are patterned with small flowers, make the square cushions in green, deep pink, mauve and pale blue to pick up the colours of the flowers. The cushions may be of different colours each side; for instance, where the curtains are of a modern design in black and red on a cream ground, the cushions could have one side black and one side red. Or a cretonne of blue and yellow design would be enhanced by using cushions with one side blue and one side yellow in the room. Another way in which the cushions can be made to harmonize with the rest of the soft furnishings, is to choose the deepest colour of the scheme for the cushion covers, then to cut out motifs from the curtain fabric and appliqué these to the centres or corners of the cushion covers.

Commence the cushion by making a cushion pad about 17 in. square, as previously described. The outer cover of the cushion is made from two 18-in. squares of material. The edges of the cover are piped in self material or with a strongly contrasting coloured material. Prepare the piping first, as described in the making of loose covers. Stitch the piping all round the edge of one cover-square, pleating the piping slightly at each corner to keep the square a good shape. Place the other cover-square on the first one with the right sides of the material facing. Join them by stitching round three sides, leaving the fourth side open (*Fig. 176*). Turn the cover right side out and press with a warm iron. Insert the pad, then neatly turn in and slip stitch the edges of the fourth side of the cover. If appliqué or any other kind of decorative stitching is worked on the face of the cushion cover, this should be done before the cover is made up.

PLAIN SQUARE CUSHION

A very personal touch can be given to a room by making the cushions, either round or square, in a plain colour such as cream or pale blue, with piped edges in a deep shade of brown or red, and with a monogram worked in the same colour on the front of the cushion cover. Another method of making an attractive square cushion is to use two neck-scarves for the front and back of the cover, piping the seams with material of a plain colour.

Round and square cushions are also attractive when made in a plain coloured material, with an appliquéd design in a contrasting colour. For instance a plain

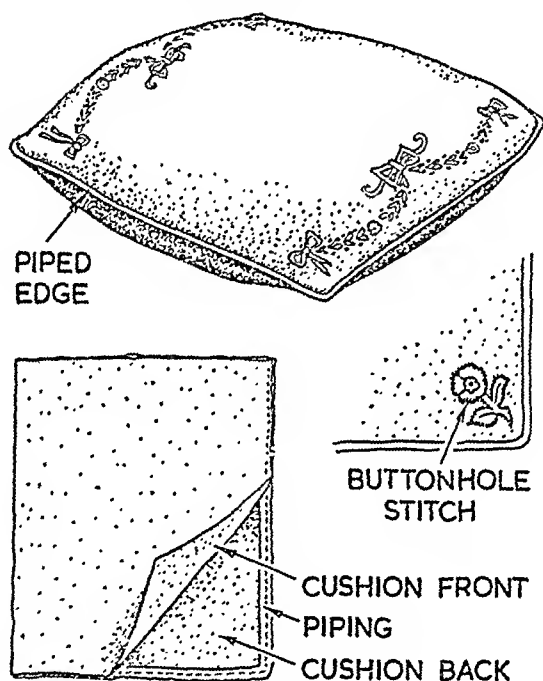


Fig. 176.

wedgwood blue cover, with an appliquéd design in white. The design should be worked before the covers are made up. Cut the design to be appliquéd from white material, pin it in position on the front part of the cover and tack it in place. Work close button-hole stitch in white cotton all round the design (see *Fig. 176*).

Most modern rooms look well with linen, gingham or cretonne cushions, but more formally furnished rooms, where curtains and covers are of taffeta, regency silks and satins, need a more formal type of cushion to suit them. There are available some lovely all rayon damasks, which though appearing luxurious are quite inexpensive to purchase. A really lovely cushion can be made by hand painting a suitable part of the design of the rayon damask with fabric paints before making

CUSHIONS AND CUSHION COVERS

up the cushion covers. The paints should be used very lightly to just tint the design. Damask dyes well, to suit any colour scheme.

An Oblong Cushion: The cushion shown in Fig. 177 is made from taffeta, but could just as well be made from any silken material, or from one of the rayon crêpes.

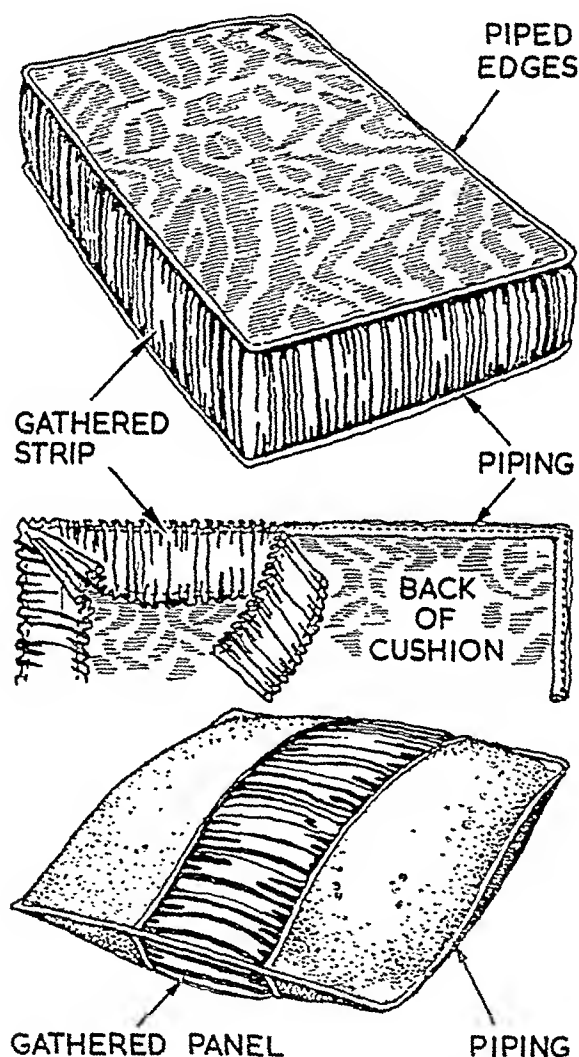


Fig. 177.

This style of cushion does not lend itself to covering in any of the cottagey fabrics, it is best made in one of the richer materials, or in chintz. The back and front are plain, while the boxing is tightly gathered between the two piped edges of the back and front to give a richness to the appearance of the cushion. Although

the cushion shown is oblong in shape it could just as easily be made in any other shape.

To make the cushion, you will require a boxed cushion pad about 2 in. to 3 in. deep, sufficient material for the front and back, allowing 1-in. turnings, and a strip equal in length to three times the circumference of the cushion and as wide as the depth of the boxing plus 1 in. for turnings. This strip should be cut from selvedge to selvedge of the material, and several pieces may be joined to get the complete length. Make up the piping over the piping cords as described in the previous section. Attach piping to the front of the cover, neatly pleating the corners. With the piping in place, join the short edges of the strip and run a gathering thread all along one long edge; draw the strip up to fit the four sides of the cushion exactly. Then tack along the edges, over the piping as shown in *Fig. 177*;

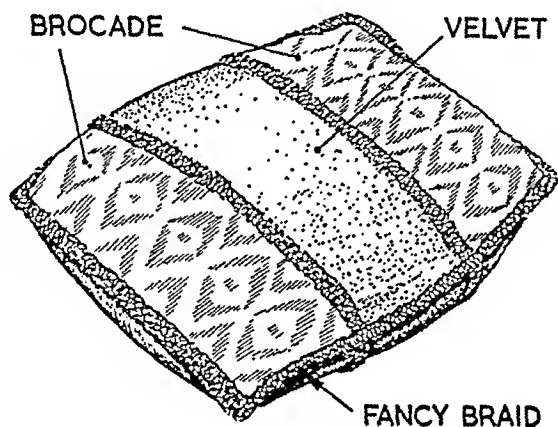


Fig. 178.

pipe, gather and tack in the same way along the lower edge to back of cushion. Stitch both seams, leaving enough of the lower seam open to insert the cushion.

A Flat Cushion: A variation of the cushion described above can be styled to make a cushion of the flat type. In the flat variation, the gathered strip is inserted across the centre of the cushion cover to form a gathered panel (see *Fig. 177*). Cut two strips of material the depth of the finished cushion with an extra 1 in. for seam allowance. The width of the strips should be a third of the width of the finished cover, plus $\frac{1}{2}$ in. for turnings. Cut a third strip the same width as the other two, but three times the depth of the cushion plus turnings. An 18-in. square cushion requires two strips 6 in. by 18 in., plus turnings, and one strip 6 in. by 54 in. long, to make the front of the cushion. The back of the cushion cover should be made from an 18-in. square of material.

Gather the longest strip and draw it up to the same length as the other two strips. Make and stitch piping along one long edge of the inside 18-in. edge of

each of the other two strips, tack the gathered strip in place between the two piped edges, and then stitch along each seam. Pipe along the four sides of the front of the cushion cover, place the back square over the front square, with the right sides of the material facing, and join the seams, leaving an opening along one side for inserting the cushion pad.

Patterned Brocade and Velvet Cushion: This cushion, which is illustrated in *Fig. 178*, is an example of how two or more small pieces of material can be combined to make a luxurious looking cushion cover for a rather formally furnished room. Choose materials of harmonizing colours, rather than pieces of sharply contrasting colours. The front and back of the cushion cover are made up separately, but both can be of the two fabrics, or the back can be cut from only one fabric.

Make up a pad of the required size for the cushion. Cut three strips of material for the front of the cover—two in velvet and one in brocade, or one in velvet and two in brocade, according to the amounts of material available. Cut another piece of material for the back of the cover. Allow $\frac{1}{2}$ -in. turnings on all three pieces of the front of the cushion cover, and an extra $\frac{1}{2}$ in. all round the square for the back of the cushion cover. Join the three front pieces and press the seams flat open. Tack fancy furnishing braid or gimp down the front of each seam, taking care to keep it quite straight. Stitch the braid firmly into place down each side of the braid. The edges of the cushion may be piped, or they may be covered with braid. In either case, place the front and back pieces together with the right sides of the material facing and stitch both short seams and one of the long sides. Stitch a few inches along from each end of the second long side, leaving the remainder of the side open to allow for the insertion of the cushion pad.

CURTAINS

Inspecting Curtains: What to look for—fabrics and fittings—periodical inspection. Cleaning Curtains: Dry-cleaning—home washing—how to wash rayon curtains. Renovating Curtains: Patching small holes—cutting down—dyeing—invisible mending. Curtain Fabrics: Points to consider—fabrics for curtains—net curtains—curtains for sash windows—curtains for large windows. Curtain Fittings: Rods—rings—curtain railways—miscellaneous fittings—curtain tape. Measuring for Curtains: How to measure windows—curtains of different types—sequence and method—variations—allowances for turnings, hems, etc.—measuring for net curtains—short curtains—widths of fabrics. Types of Curtains: Lined, unlined and transparent curtains—fabrics for curtains—advantages of lining curtains—materials for transparent curtains. Making Unlined Curtains: Equipment and materials—method of work—marking and cutting—matching patterns. Headings for Curtains: Types of headings and their uses—allowance for headings—stiffening—starched headings. Casings for Tops of Curtains: How to form casings—attachment of fittings—use of pocketed tape. Finishing Bottom Edges of Curtains: Variations of treatment—weighting. Attaching Curtain Rings and Hooks: Use of pocketed tape—stitching—use of narrow tape—method of attachment. Edging and Trimming Curtains: Extra decoration—examples of materials—furnishing braids—piping—decorating with bands—gingham curtains—small curtains. Lined Curtains: Uniformity of coloured linings—method of making—sequence of work—invisible stitching—pressing—finishing. Pelmet and Valances: Types of valances—valance frills—pleated valances—pressing and finishing—pelmet—shapes and types—patterns for pelmet—shaped edges—fabric pelmet—stiffening material—use of patterns—cutting and assembling—finishing. Net or Lace Curtains: Variations of styles—method of measuring for lace curtains—frilled edges—treatment of small windows—making and finishing. Plastic Curtains: Curtains for kitchens and bathrooms—how to stitch plastic materials. Dressing-table Curtains: Suitable materials—treatment of tops—making curtains—use of pocketed tape—finishing.

THE selection and care of curtains is closely allied to the sensible maintenance of the interior decoration of a home. It is always a good plan to inspect curtains and their fittings whenever the periodical inspection of the interior of the house takes place. Good quality fabrics and fittings are not cheap to buy, but if they are reasonably cared for they should last for some years and it will be found false economy in the long run to purchase cheap materials. Nothing gives a house a more run-down and neglected appearance than curtains that are badly hung or those that are in need of repair. Curtains and pelmet that are trimly cut, are well made and carefully cared for, do much to add to the comfort of a home.

Inspecting Curtains: When inspecting curtains and fittings, the things to look for are fading of the fabric, fraying seams and missing hooks or rings. The fittings

should be inspected as carefully as the curtains to ensure that they are not corroded or rusted. Any corrosion on curtain fittings may be removed by rubbing the fittings with soft steel wool until the metal gleams. Final treatment consists of wiping fittings with a cloth dipped in olive oil. Olive oil applied sparingly is also used on metal curtain rails to lubricate the small wheels of curtain runners. Heavy fabrics should be inspected for signs of attack by moth. It is a sensible plan to take down curtains of thick, heavy fabrics every few months and brush them, paying particular attention to folds and pleats, to remove any loose dust. After brushing, the curtains should be hung in the sun for a little while to discourage any lurking moths.

Cleaning Curtains: Most lined curtains and all curtains of heavy fabrics are best sent to a dry cleaner. Light-weight curtains, and curtains of materials that are light in colour, require frequent washing, which can be done at home, to keep them looking crisp and fresh. Frequent washing to remove dirt and dust also helps to preserve the fabric, always providing that the correct method of washing and ironing is applied to the different types of materials. Curtains of cotton and linen, woven by well-known manufacturers, are easy to wash. They should be soaked overnight in hot soapy water, rinsed out the next morning and hung out to dry. Curtains that are loosely woven or are very thin or worn can be improved with a very light starching. Many of the fabrics manufactured for curtains are made from rayon, or contain some rayon—curtains of this type are weakest when they are wet and therefore they should not be soaked before washing. Curtains of rayon must be washed quickly and carefully, using only warm water, soap or detergent; the fabric should not be rubbed or twisted. Rayon curtains are best dried by folding them carefully and rolling them in a towel; leave them until they are only slightly damp. Curtains of rayon materials should never be damped by sprinkling before ironing or the spots of water will show. Iron with a warm iron and stretch the curtain gently to its original size. *A hot iron should not be used on rayon, or fabrics containing rayon.* If the material has a glossy surface it should be ironed on the right side; if the finish is a dull one, the ironing should be done on the wrong side of the material. All seams and hems should be ironed on the wrong side and care should be taken to avoid pressing the iron too heavily into pleats or gathers.

Renovating Curtains: Before starting to repair curtains it is necessary to decide whether or not they are worth the labour and trouble involved. If the curtains were originally well made of good quality material it is generally worth while renovating them. Any burns or small holes may be concealed by careful patching, and curtains that are worn down the seams can be cut down to make curtains for smaller windows in the house, or the edges may be cut off and borders added. Curtains which are worn all over, however well made, are rarely worth the trouble of careful renovation.

358 Cotton and linen curtains may very often be given an extended life by dyeing

them and many proprietary brands of fabric dyes are available. The instructions given with the dye should be followed carefully and exactly to obtain completely successful results. If curtains with worn or frayed edges are of good width, it is often possible to cut the edges off and seam the curtains up again, but if they are not very full the frayed or worn edges may be bound with a patterned material—plain materials are best for binding the edges of curtains of patterned materials. If the curtain is worn at the top by strain on the rings or tape, the worn part may be cut away and the curtain reversed, with a new brand of contrasting material added to the bottom of the curtain.

Small tears and holes may be concealed in various ways. This may be done by adding bands of contrasting colour to the curtain with the bands so arranged that the tear or hole is covered by one of them. Alternatively, small areas of damage may be embroidered or a decorative motif may be appliquéd over the repair and the embroidery or appliqué extended to other parts of the curtain. Tiny holes or tears can be invisibly repaired by pulling threads from a piece of matching material, or from the insides of the hems of the materials, and using the drawn threads to effect the invisible darn. This job requires patience, but it is well worth while if a set of curtains in good condition are merely spoiled by one small hole.

Curtain Fabrics: There are several points to consider when buying fabrics for making curtains. In the same way that there are different kinds of windows, there is a variety of styles of curtains, and to obtain good results it is necessary to decide on the type of curtain for a particular window before choosing the fabrics. Curtains, like decorating materials, can do quite a lot to improve a house and alter the appearance of a room. For instance, a room with windows facing a high building or fence can be made to appear much lighter and be given a sunny and airy impression by the use of thin organdie curtains, in a pale shade of colour, extending from the ceiling to the floor over the windows. Full-length curtains of light organdie will diffuse the light and spread it over the room. If it is necessary to give the room a formal, dignified appearance, curtains which hang just clear of the floor will heighten the effect. In most small houses curtains which are cut and hung to just clear the window-sill will be found best and curtains which are made to hang about 4 in. below the sill will keep out draughts and be sufficiently long to avoid any appearance of skiminess.

When choosing fabrics for curtains it should be remembered that the material will be viewed in two ways. Any design or pattern on the curtains will be fully seen when the curtains are drawn together, and most often this will be done to show the pattern under artificial light. Curtains must also be attractive when drawn back, when only parts of the design will be visible, and this in daylight. The discriminating purchaser of curtain materials should view the different fabrics with them draped from all angles before making a final decision.

Curtains of materials that are easily washable are best for kitchens and bathrooms and these may be of sheet plastic, which material is available in a wide range

of colours and designs, or curtains—for bathrooms especially—may be of terry-towelling purchased by the yard.

The use of net curtains for some windows is largely a matter of individual consideration. In most cases linen, chintz or cretonne will be found adequate on their own, but if the windows are overlooked the additional use of net curtains will give greater privacy, without restricting light. If it is decided to use net curtains, it should be appreciated that there are many pretty and inexpensive alternatives to plain netting, such as pin-spotted muslin, organdie, madras muslins, voiles, chiffon and nylon—and remember too that it is not necessary to keep to usual white or biscuit shades of colour—the materials mentioned above may be obtained in an excellent range of pale pastel shades of colour.

Older types of dwelling-houses are, in most cases, fitted with sash windows, which are, of course, the type which slide up and down, as opposed to casement windows, which are the kind which open like a door. Sash windows look rather bare in a room and somewhat on the large side in modern schemes of decorating and furnishing. This bareness may be overcome with well-chosen curtain fabrics and the window made into a graceful and harmonious part of the scheme. Curtains for sash windows generally look best if a rich or heavy fabric is chosen. Taffetas or satins, although they are thin materials, have a richness that gives an air of dignity to sash windows. Flimsy curtains of light-weight materials are rather apt to emphasize the bareness of sash windows rather than soften and conceal it. The curtains for sash windows should always be cut with plenty of fullness. Casement windows which are fitted to most modern dwelling-houses and country-style cottages are best set off by simple but gay curtains. Suitable materials are chintz, gingham, light-weight cretonnes, casement cloth and printed cottons, and the pattern design, if any, should be kept small.

Newly built dwelling-houses and flats in most cases have very large windows which are set right across the wall of a room; unless large windows are curtained carefully they may give an appearance of bareness. Windows of this type require curtains with a certain amount of substance to balance the large expanses of glass, and heavy curtains for large windows give a greater appearance of cosiness in winter. For large windows, choose a fabric which has plenty of weight. Alternatively, a medium-weight fabric may be used if the curtains are lined. Vivid colours are suitable for lining medium-weight fabrics, if the material is plain, or the linings should be of a large flowery-patterned material, or one with bold stripes. Paisley and jacobean designs are attractive provided the curtains are made with plenty of fullness to pull across the windows. For large windows of this type an all-over transparent curtain hung to cover the glass, with a very full curtain hung at each side of the window, softens the glare.

Curtain Fittings: Curtains may be hung in many different ways; with rings from rods, from spiral curtain wires, or from the more modern curtain rails. Curtain rods and rings are not often used but in some older types of houses the windows

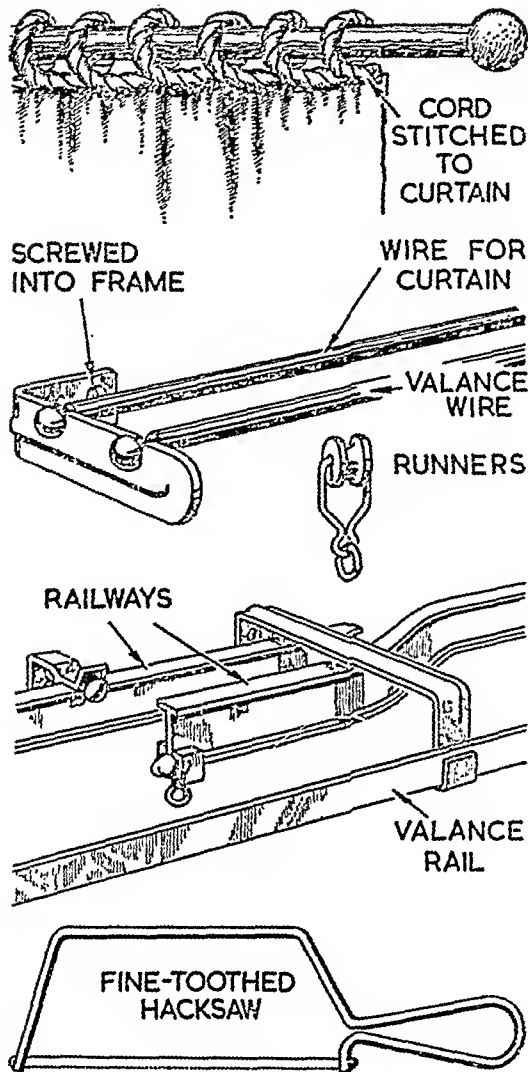


Fig. 179.

may be more suited for long curtains which, according to the style of the house, may look best suspended from a rod. The rod, which actually is a tube of iron, coated with thin copper or brass, should be heavy enough to support the weight of a curtain without the rod bending. If the style of the window necessitates the use of a curtain rod this can be made decorative by painting the rod in a colour to harmonize in the scheme of decoration and, instead of using brass curtain rings,

using rings of thick cords of a contrasting colour to that of the rod, as shown in *Fig. 179*.

Curtains hung on very small windows are best supported by flexible curtain wires and these may also be used successfully for small landing windows, for hanging transparent curtains fitted close to a kitchen or bathroom window and for net curtains fitted inside heavier curtains. The flexible spiral curtain wire may be purchased plain or covered with plastic tubing, and they are supplied in a range of attractive colours. The plastic covering saves snags in the curtains, especially if the wire is threaded through the heading, as is often done with net curtains. Plastic-covered curtain wires are very suitable for kitchens or bathroom use as the plastic cover prevents any rust from steamy atmospheres damaging the curtains. Curtain wire is sold by the inch and slightly less than the measured width of the window should be obtained so that the curtain spring is stretched *a little* to fit the space. Spiral curtain wires are fitted to windows by screwing the tiny eyelets into the ends of the wires and the eyelets hook over small hooks which are screwed into the sides of the window frames, as illustrated in *Fig. 179*, which also shows a special valance bracket for use with this type of fitting. Small runners may also be obtained for use with plastic-covered curtain wiring and these are also illustrated in *Fig. 179*.

Curtain railway systems are usually made of brass, anodized aluminium or a non-rusting alloy. These railway systems are slightly more expensive than curtain wires or rods, but they have a very long life and should give years of satisfaction if properly fitted. The shape of the fittings for curtain railways may vary slightly between different manufacturers, but those illustrated in *Fig. 179* are of the general type. Component parts of a curtain railway consist of the rail, which has a shaped lower edge providing support for the two small wheels which are fitted to each runner. The material from which the rails are made is soft enough to shape the rail to fit angles and corners, and the shaping may be done with the hands or with a pair of pliers, the jaws of which should be covered with a piece of soft cloth. The rail is supported by brackets which may be screwed into a pelmet board or into the window-frame.

Additional fittings will be required for valance rails; these are illustrated in *Fig. 179*. Valance fittings consist of a metal bracket and thin valance rail. The valance rail and the curtain rail may be easily cut to length with a fine-toothed hacksaw of the 'junior' type as shown in *Fig. 179*. The ends of the cut lengths are fitted with a small stop (shown in the illustration) which is simply fixed in place with a small ring screw. The softness of the rail permits it to be bent as shown in *Fig. 179*, so that the ends of the rail in the centre of the window are overlapped to ensure full closing at the joining edges of the curtain. The valance rail, of course, is not lapped. If the window is a very long one it may be necessary to join sections of the rail and the valance with clips. The type of screws used for securing the fittings to the framework of the window are usually round-headed brass or

copper screws. To prevent these breaking off, leaving the points in the woodwork, it is advisable to start the hole with a bradawl and drive in a steel screw of the same width and length to form a good seating for the softer screws of brass or copper.

Curtains and valances hung from railway systems have headings that are turned with tape. Rufflette tape of the pocketed variety is used where the heading is to be straight or slightly gathered. The tape, which is very strong, is fitted with evenly spaced pockets or slots and is sold in a good range of colours; use of this tape eliminates the necessity of sewing rings to the top of the curtain and the curtain hooks are inserted in the pockets and into the small ring fitted to the bottom of the roller (*Fig. 180*). The pocketed tape is manufactured with two cords

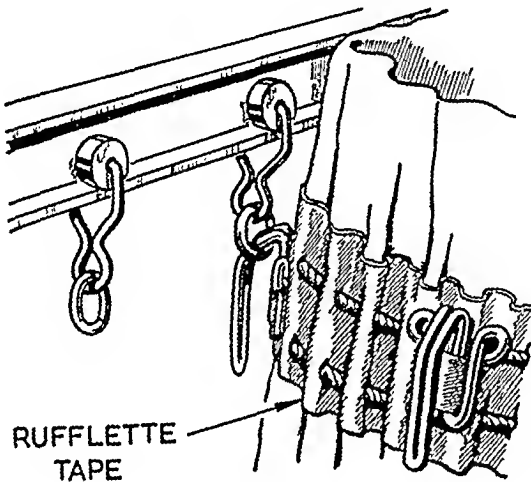


Fig. 180.

running through it, and these are pulled up just sufficiently to give exactly the required fullness. The ends of the cord should be tied after pulling up and not cut off, in order that the curtain may be let out so that it is flat for washing. Using this type of pocketed tape gives the advantage that the fullness of the curtains is gathered to an exact evenness. When the pleats or folds at the head of the curtain are fixed, that is to say when they are stitched, crown webbing is used instead of pocketed tape.

Measuring for Curtains: It should be obvious that windows should be measured before purchasing materials for curtains and of course this must be done with care. To do the job efficiently and economically a yard-stick is the best thing for measuring windows for curtains. If a yardstick is not available a carpenter's folding rule may be used or a tape measure. If a tape measure is old and limp it may stretch and the best method of using a tape measure is to fasten the tape to a broom-handle with drawing-pins each end and use it in the same way as a yardstick is

used. Having decided on the type and style of curtain for a particular window, the appropriate measurements should be noted. In addition to noting the measurements it will be found helpful to make a drawing of the window so that when the fabric is chosen it should be possible to visualize the curtains, especially with a view to judging where the design motifs are likely to be positioned. With a small-pattern overall design, careful balance of the design is not so necessary as is the balance of the fabric which is decorated with large design motifs. When using the latter it will be necessary to match the motifs on curtains which hang side by side, and unless this is planned carefully, matching large-patterned material may entail wastage.

Two distinct groups of measurements would be required. These are the actual measurements of the window and the window-frame, also the measurements of the curtains when *finished*. The method of measuring a window is illustrated in *Fig. 181*. In the illustration, (a) indicates the ceiling and (b) the floor of the room. If a pelmet is being made the window should be measured from point 1 to point 2, or from 3 to 3 in the diagram, according to the width of the pelmet, and if it is to extend beyond the frame at both sides to give an appearance of greater width. Valances are measured to extend around the fitting: the distance 3 to 4 in the illustration shows the depth of the pelmet or valance after making. Transparent or net curtains should be measured from 5 to 6 or 5 to 7, in the illustration, according to whether or not the curtain is to be loose or secured at the bottom of the window. Casement curtains should be measured from the top of the fitting whatever the type of fitting is used, to 7 or 8 in the illustration or to just clear the floor, according to the type of curtain being made. For short curtains the measurements should be taken from the top of the bottom frame to point 6 or 7 in the illustration.

In all cases the width of the window from frame-edge to frame-edge each side will be required. From the measurements taken as described above, it should be quite a simple matter to calculate the amount of material required for the *finished* curtains, but to the measurements calculated above several additional allowances must be made for each curtain to arrive at the *total* amount of material required. If the curtains are unlined the following allowance should be made: 9 in. extra for each curtain should be allowed for headings for floor-length curtains. If the curtain is to hang to floor length and is to be made without a heading, in the case where rings or other fittings are attached to the top edge of the curtain, it will only be necessary to allow 6 in. extra to the length. Shorter sill-length curtains made with a heading only require an extra 5 in. for each curtain. If sill-length curtains are made without a heading an additional $3\frac{1}{2}$ in. for each curtain would be sufficient. In the case of lined curtains it will be necessary to add 5 in. to each curtain to the measurements for the curtain fabric, and for the lining material it will be necessary to add 4 in. to the length of each curtain. This is general whatever the length of the lined curtains.

Addition for net or transparent curtains which hang full length and which are to be made with a top hem only is 4 in. for each curtain. In the case of a curtain with top and bottom casings, for instance those hung at a french door, the additional allowance should be 8 in. Short transparent curtains with narrow headings will require an extra 5 in. in length for each curtain, but curtains with casings only will just require an extra 3 in. per curtain. If short transparent curtains are to be made with top and bottom casings an extra 8 in. of material per curtain would be required.

In addition to the length of the curtains and the different allowances for various types of curtains, the width of the fabric must also be taken into consideration and some provision must be made for overlapping pairs of curtains so that they do not look tightly stretched when they are drawn. In this instance it will be necessary to make each curtain $1\frac{1}{2}$ times the actual width required. In most cases this means making the curtains $1\frac{1}{2}$ times as wide as the fabric width or, in some cases, twice the width of the fabrics. Small windows may only require a single width of the fabric. It will of course be appreciated that fabrics are sold in different standard widths—30 in., 36 in., 44 in., 46 in., 48 in., 50 in., and 54 in. are the standard widths most generally used. Therefore, before purchasing material with the help of the sketch previously mentioned, and allowing extra dimensions according to the style of the curtain, work out the exact amount required for the most appropriate *width* of material. The method of measuring fabrics for pelmets and valances is given later in this section under those headings.

Types of Curtains: The types of curtains may be grouped under three main headings for the purpose of making up—these are lined curtains, unlined curtains and transparent curtains. There are, of course, many different styles in each of the three main groups. Of the types of curtains, unlined curtains form the largest group: most of these are usually made from medium- or light-weight fabrics and they are wide enough to pull right across windows. Unlined curtains can be made any length required and they can be used for any type of window. Fabrics that are suitable for making unlined curtains include printed cotton, cretonnes, chintz, folkweave, casement cloth, taffeta and terry-towelling. For large windows, or for very cold windows such as those exposed to cold winds, lined curtains should be used and the heavy appearance of lined curtains generally makes a good setting for large windows. Lined curtains may also be used to advantage in a room where a rather dignified scheme of decoration has been planned. Curtains that are lined have a longer life than unlined curtains as the lining takes most of the hard wear. Generally speaking, lined curtains are best made from the more expensive heavy fabrics and the lining material can be something more inexpensive than the main material, such as sateen or casement cloth. Lined curtains always look best when they are finished with a stiff pelmet or a lined one. Lined curtains are not seen to their best advantage when used with a pleated or frilled valance which may appear to be too informal against the heavy curtains.

CURTAINS

Transparent curtains, which form the third of the three main groups of curtains, are usually made for fitting close against window panes. Transparent curtains are sometimes secured at the top and bottom edges or they may be secured at the top edge only with the bottom edge unsecured. Transparent curtains may be half or full length, to suit individual requirements, and they may be draped in various ways. Until recent years these transparent inner curtains were almost always made of lace, but developments in the manufacture of modern curtaining materials have

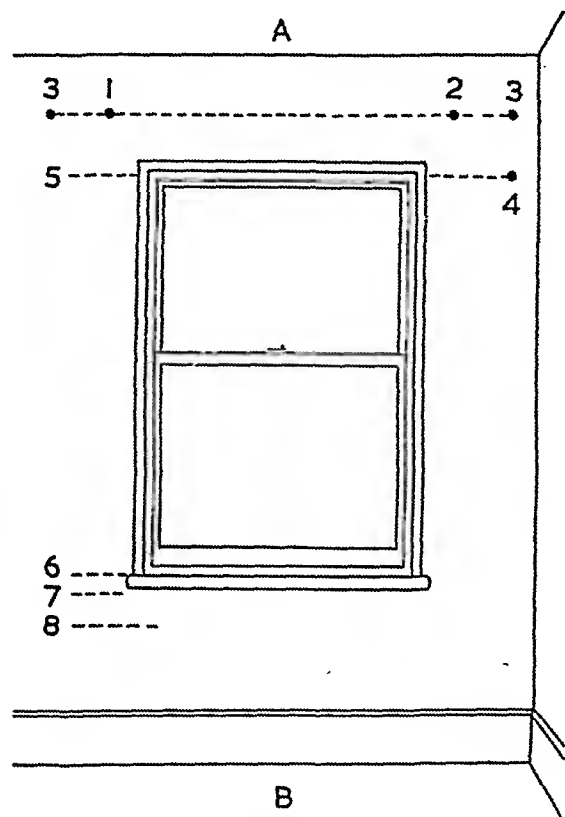


Fig. 181.

led to the use of other fabrics for transparent curtains. These may be obtainable in nets of different patterns and in various shades which may be either frilled at the edges or with plain bound edges. Other materials which are suitable for transparent curtains are nylon, muslin, organdie, voile and ninon. Suitable shades of colour for a cold room are gold, pink, deep cream and peach; while transparent curtaining materials are very suitable for use in dark rooms. Pale shades, such as cream, blue or green, impart a cool freshness to a room.

Making Unlined Curtains: Materials for unlined curtains may be sewn by hand or by machine. In most cases unlined curtains are best machine sewn, but some

fabrics which are apt to pucker when machined will look better if hand stitched. The curtains should be made on the largest table available or they may be made on the floor if it is first covered with clean paper. The equipment required for making curtains consists of a yardstick, a very sharp pair of large scissors, a piece of tailor's chalk and a good supply of dressmaker's steel pins. Additional materials consist of sewing cotton or Sylko—in colours to match or harmonize with the fabrics—Rufflette tape or crown webbing in the main colour of the curtain fabric and, for some curtains, some small lead weights; farthings make a good substitute for lead weights.

Unlined curtains are quite easy to make up, but care is necessary in cutting out the material as the curtains must be perfectly cut if they are to hang well. No amount of care in making up will compensate for careless cutting. The curtains in a pair must be exactly the same size, therefore the measurements must be accurate. With patterned materials it is also necessary to balance the pattern motifs in the two curtains of a pair.

To commence making the curtains inspect the cut edges of the fabric—these are not always cut perfectly straight in the shop and it is necessary to have straight cut edges. A simple method of straightening crooked edges consists of drawing a thread out right through the width of the fabric and this will give a perfectly straight line from which to start measuring the curtain lengths. From the line marked by the drawn thread, measure the required lengths along one selvedge, remembering to allow for turnings and headings, etc., and mark the limit of the length by inserting a pin. Measure the same overall length along the other selvedge and insert another pin to mark the end of the length. Before cutting the material re-check the measurements each side from the marking pins to the drawn thread and, when satisfied that these are correct, draw out the thread across the width of the fabric from pin to pin. Cut evenly along the line clearly visible where the thread has been drawn.

If the curtain material is a very cheap one, it may well be that it is not woven evenly, in which case this method of marking by drawing a thread may not be completely accurate. If the weave of the fabric is uneven it will be necessary to rely on accurate measurement each side of the material before cutting. If the width of the curtains is greater than the width of the fabric, it will be necessary to allow for matching the design when measuring the separate curtain lengths before cutting the material. If it is necessary to join two full widths of the fabric to make a single curtain a plain seam may be used at the join and the width of the turning should be the same as the width of the selvedge. With the plain seam neatly stitched it should be pressed open and flat. It may be necessary, with some fabrics, to nick the edges of the selvedge at intervals to prevent rucking at the seam. If a curtain is being made from a full width and part of a full width of fabric, the cut edge should be joined to the full width using a flat seam as shown in *Fig. 182*. When joining part widths in a single curtain the smallest width should always be

joined *inside* the curtain so that it is nearest the frame when hung; this enables a *pair* of curtains to be made, rather than two identical curtains, to be reasonably economic with the use of material. The side edges of the curtains are finished by making a very narrow hem along each side, as illustrated in *Fig. 182*, and in doing this the selvages—if they are tight—should be nicked at intervals before turning them in to make the seam. The tops of the curtains may be finished in a variety of ways, depending on whether or not the curtains are to be topped at the front with a pelmet or valance.

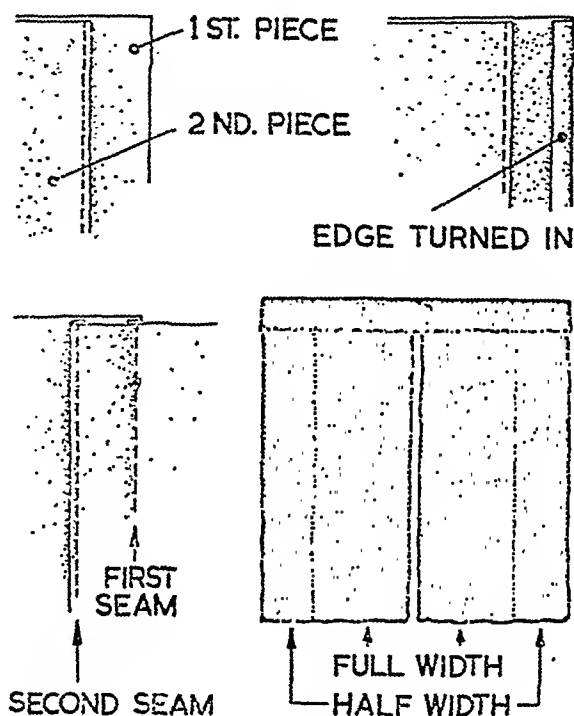


Fig. 182.

Headings for Curtains: The addition of a heading to a curtain depends on how it is to be hung. If the top of the curtain will be concealed by a valance or pelmet a narrow hem and casing will be all that is necessary and a heading will not be required, but if the curtains are to hang by themselves without being finished with a valance or pelmet, a narrow heading will give them a more decorative finished appearance. The 'heading' is the part of the curtain which rises above the fitting and this is illustrated in *Fig. 183*. If the curtains are hung from a curtain rod or spring, the heading can be made quite small to give a neat decorative finish. If the suspension fitting is of the curtain railway type a deeper heading will be necessary to conceal the rail fitting, and make the window look more dressed. A suitable depth for small headings is from 1 in. to 2 in., larger headings

may be from $3\frac{1}{2}$ in. to 4 in. in depth. With deeper headings than this the heading may flop and seem out of proportion with the curtain unless the fabric is very stiff. Curtains of medium-weight materials hung to sill length look best finished with a heading of about 3 in. in depth. The amount of material required for the heading should, of course, be taken into consideration when measuring the curtain material; the actual measurement of the curtain itself should be taken from the top of the casing or heading, as illustrated in *Fig. 181*. Light and medium weight fabrics will require some form of stiffening for deep headings to prevent them flopping. If a heading is being formed on curtains of fairly light-weight materials a few rows of machine stitching worked above the casing and sewn through the double material should be all that is required to stiffen the heading (*Fig. 183*). The rows of stitching should be made at a distance of about $\frac{1}{4}$ in. apart and a matching thread should be used in the machine. The deep headings should be stiffened by the insertion of a piece of tailor's canvas inside the headings. The deep headings may also be left unstiffened yet made to stand up by the attachment of special heading hooks on the back of the curtain as illustrated in *Fig. 183*. Curtains of a very light cotton or other similar washing materials should have the headings starched to make them stand up.

Casings for Tops of Curtains: The casing of a curtain is the hem at the top through which the curtain rod or wire runs or to which, in the case of curtain railway fittings, the hooks are stitched. The casing may consist of a double hem made at the top of the curtain, or of a single hem faced with pocketed tape of the Rufflette type—the latter is probably the neatest and easiest method of casing. Both types of casings are illustrated in *Fig. 183*.

If the casing is to be made in the form of a double hem the top of the curtain should be folded over to make a turning at least 1 in. deep. The rings or hooks are then stitched to the turning on the right side of the curtain material. The top of the curtain is folded over again so that the hooks or rings are positioned on the wrong side of the material and the bottom edge of the turning is stitched through—again sewing through both thicknesses of material. If pocketed tape is used to make a casing the top of the curtain should be turned over on to the wrong side of the material, the position of the fold being where the top of the casing is required. The turning should be pressed down to make certain that both edges are straight and the top edge of the tape is stitched down so that it covers the cut edge of the fabric as illustrated in *Fig. 183*. To finish this form of casing, stitch along the opposite side of the looped tape, taking care not to stitch in the gathering cords. The curtain hooks, or rings, are then inserted in the loops in the tape as shown in the illustration (*Fig. 183*).

Finishing the Bottom Edges of Curtains: The bottom hem of a curtain is the last part of the work to be done. With the sides and top finished the length of the curtain should be machined from the casing and the correct length marked with a pin. To ensure accuracy it is necessary to measure the length of the curtain three

times; this should be done at both edges, also down the middle of the curtain, and the end of each measurement should be marked with a pin. The bottom hem is then folded over so that the pins are on the fold and a double hem is sewn at the bottom of the curtain, the ends of the hem being oversewn as illustrated in *Fig. 183*. If a light-weight curtain material is being used, it may be necessary to insert a few weights in the bottom hem; small lead weights made especially for this purpose may be obtained from shops and haberdashery counters of stores, or

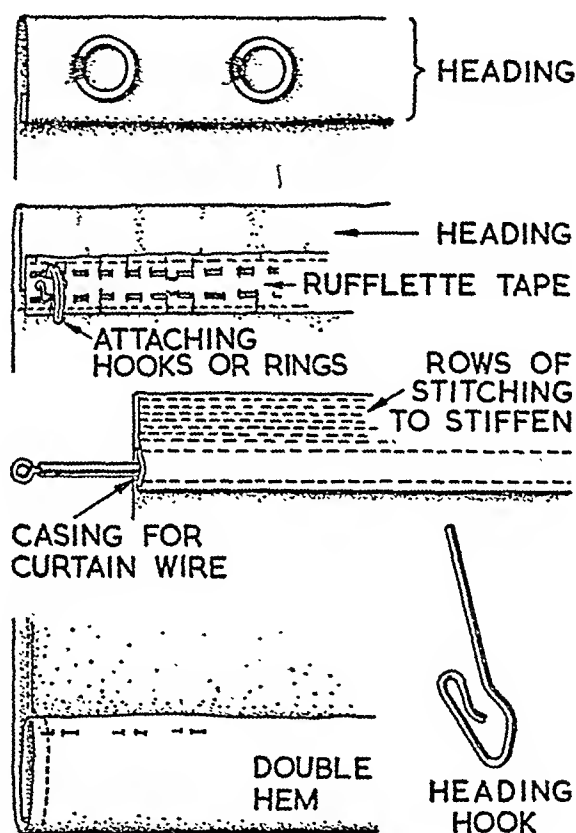


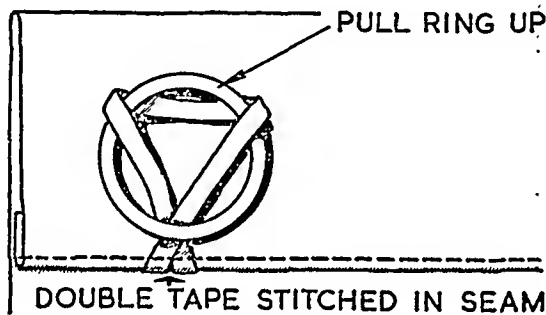
Fig. 183.

farthings may be used instead of lead weights. Alternatively, weighted tape, made specially for this purpose, may be obtained. Whichever form of weighting is employed the weights should be inserted into the bottom hem before the ends of the hem are oversewn.

Attaching Curtain Rings and Hooks: If pocketed tape is used at the top of a curtain the special hooks or rings made for use with this kind of tape are simply attached by slipping the rings or hooks into the slots of the tape. If, however, a plain unpocketed tape is used, or the curtain has a self-casing, it will be

necessary to attach curtain rings or hooks in other ways. Obviously the easiest method of attachment is to sew the hooks or rings on to the casing on the wrong side of the curtain. This method has one drawback—the rings or hooks will have to be removed every time the curtains are washed; if this is not done the metal fittings may rust and stain the curtain material or they may damage the rollers of a wringer. A better method of attachment is to fasten the rings with narrow tape and in this way the fittings may easily be removed when the curtain is washed or cleaned. This alternative method is illustrated in *Fig. 184*. A length of narrow tape is placed round a ring fairly loosely and the tape is pinned to hold the ring in place. The tape is then cut through, leaving ends about $\frac{1}{4}$ in. long. With this done, the fastening pin is removed and the piece of tape is used for cutting other lengths of the same size for each of the rings. Each separate

2:1

*Fig. 184.*

length of tape should be doubled and the two ends placed under the hem, as illustrated in *Fig. 184*. The ends of the tape are then stitched in with the hem. To attach the rings, place a ring over the loops of the tape so that the top of the loop is above the top of the ring, then pull the ring upwards, as shown in *Fig. 184*, so that it is held firmly in place.

Edging and Trimming Curtains: It often happens that some types of curtains require a little extra decoration, to suit the decorative scheme of the room in which they are hung, or they may require some colourful addition to fit in with the general colour scheme. There are several ways in which extra decoration and colour may be added but as a general rule trimmings on curtains should always be kept to a minimum. If trimming is overdone this tends to give the curtains a patched-up appearance. Some form of trimming is sometimes necessary on large curtains made of plain fabrics to break up the expanse of colour. This may be done by adding a fringe—either straight or a bubble fringe—along the bottom edge of curtains of heavy materials. If the curtains are topped with a pelmet the

bottom edge of the pelmet may also be trimmed with the same type of fringe as that used on the curtains. Long full-length curtains may have their side edges finished with a plain or bubble fringe, but the addition of fringe to sill-length curtains is not entirely suitable as, in most cases, this will make the curtains look much too heavy for the room. Fancy furnishing braids and gimps give both a decorative and neat appearance to curtains in heavy fabrics, when used to outline the edges. Narrow piping of a contrasting colour to the main colour of the curtains may be used successfully on the edges of lined curtains. Unlined curtains of

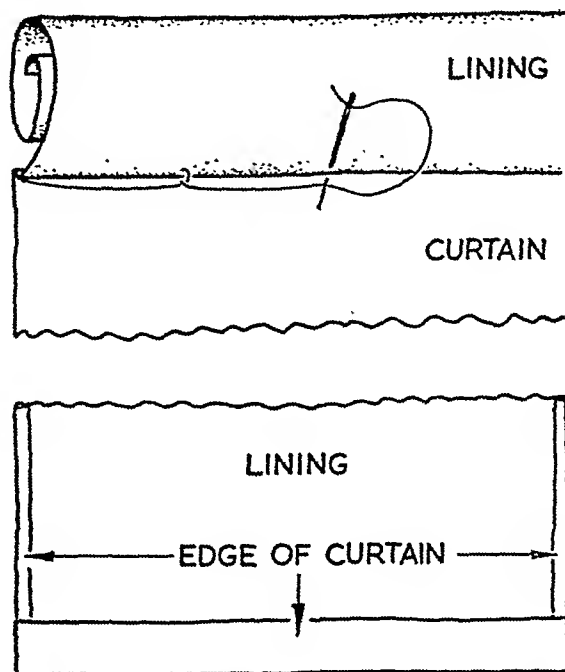


Fig. 185.

brightly printed cretonnes or linens may be successfully decorated and made to look more attractive by binding the edges with bias binding in the darkest colour of the design pattern.

Contrasting bands of material may be used to good effect to give additional colour to a curtaining scheme which has turned out to be too neutral, and this may often happen where cream or beige curtains have been chosen. Three colours which contrast well should be chosen for the bands. To make the bands, cut straight strips of the material. All three bands for each curtain may be of the same width, or the widths may be graduated. If the bands are of the same width a suitable size will be $1\frac{1}{2}$ in. to 3 in. If, however, the bands are to be graduated in size the narrowest band may be as little as $\frac{1}{2}$ in. in depth, working up to a width of

about 3 in. for the largest band. Graduated bands of this nature are attractive if three shades of the same colour are used for the bands on a contrasting coloured curtain. The strips should be cut on the straight of the fabric and a narrow turning is folded over along both sides and pressed well. The first band should be placed at a distance of about 3 in. above the bottom hem of the curtain and the band should be pinned in position, making quite certain that it is pinned in a perfectly straight line, before stitching along both ends of the band. The distance between the decorative bands is usually equal to the width of the band. In the case of bands of graduated widths, the distance width between bands should be the same as the width of the widest bands. The bands of material should be stitched on before lining the curtains if they are to be lined.

Gingham curtains always look fresh and gay in kitchens and bathrooms and these may be given added attraction by the addition of bands of white ric-rac braid or bands of bias binding. Narrow frills of organdie or frills of the same material as the curtain add attraction to printed cotton curtains. The frills should be about 2 in. to 3 in. in width. To attach the frills, make or bind a very narrow turning along one side and gather lightly along the other side; attach the gathered end of the frill to the curtain.

Small curtains for casement windows may be given added attraction by motifs appliquéd along the edges. The appliqué design should be bold and of course the colours of the piece of material used should be fast.

Lined Curtains: Many people like to line all their curtains and this makes it possible to vary the colours and patterns of the curtains inside the house yet for the curtains to be uniform in colour as viewed from the outside. Lined curtains may be made very quickly by sewing two lengths of material—together like a bag—turning the curtain right side out and finishing with the heading as for unlined curtains.

Small curtains of light-weight material may successfully be made in this way, but if the curtains are long or heavy they may not hang smoothly and will probably drape and bulge at the seams. The correct method of making lined curtains does take slightly longer than the simple method described above, but the correct method does ensure that the curtains will hang together in neat folds, also that they will wear very much longer. Both the curtains and the linings should be cut out in exactly the same way as previously described for making unlined curtains, but the linings should be cut 2 in. shorter than the curtains themselves. If more than one piece of fabric is joined for the width of a curtain, the pieces may be joined together, using plain seams and making turnings of about $\frac{1}{4}$ in. to $\frac{1}{2}$ in. Where the selvedge edges are being joined nicks should be cut at intervals along the selvedge to avoid rucking.

The lining widths should be joined in the same way as the curtains. Lay the curtain out quite flat on a large table, or on a floor covered with clean paper, with the wrong side of the material uppermost. Spread the curtaining quite flat then

cover it with the lining so that the right side of the lining is uppermost. With this done, smooth the two pieces of material and make quite certain that there are no creases in either the curtain or the lining material and that the side edges are quite even. The lining and curtain material are then stitched together, using a slip stitch which is similar to button-hole stitch. The distance between the stitches should be from 3 in. to 4 in. With this done, fold back about one-third of the curtain lengthways as illustrated in *Fig. 185*. The exact amount of the fold depends on the width of the curtains, and very wide curtains may require as many as four or more rows of stitching. A needle should be threaded with a long length of cotton of a colour to match the curtain material: stitch along the fold of the lining, making a small button-hole stitch, but taking up with the needle only one thread of each fabric as illustrated in *Fig. 185*. The stitches made in this way will be practically invisible from the outside of the curtain. Continue stitching down the length of the curtain, then fold over either side of the lining fabric in the same way and slip stitch down the length of the curtain again. Turn in about $1\frac{1}{2}$ in. along the sides of the curtain material (*Fig. 185*) and press the turning with a warm iron. Along the bottom of the curtain turn up the hem allowance and press this turning, also with a warm iron. Pull the lining fabric back on to the curtain, then fill in the edges of the lining along the sides and hem so that the lining edge comes within $\frac{1}{2}$ in. of the outside edges of the curtain, as illustrated in *Fig. 185*. Finish by slip-stitching down both sides of the curtain and lining. At this stage the top of the curtain is still open although the sides and hem are finished. Press the curtain and measure the exact length the curtain is required to be from the hem. Mark a turning line with chalk then turn the curtain and the lining down at the top with both pieces together on the chalked mark and press with a warm iron. Pocketed tape is then attached along the edges and stitched down, as previously described for attaching pocketed tape to unlined curtains.

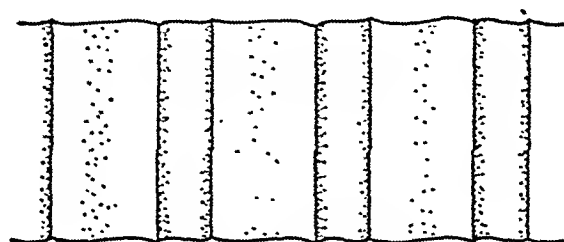
Pelmets and Valances: These are used to finish and frame sets of curtains. A pelmet is used for formal curtain arrangements and a valance looks best with informal types of curtaining. A pelmet is a flat piece of fabric or wood which is fitted across the top edges of curtains. A description of making and fitting pelmets is given on page 166.

A valance is a short curtain which, like a pelmet, is fitted to hang across the top of a window and cover and enclose the tops of curtains. A valance is nearly always made of the same fabric as that used for the curtains, and valances are gathered or pleated. The depth of the valance depends on several things: the size of the curtains, the size of the room in which the curtains are hung, and the window, also on the type of fabric used for making the curtains. In most cases a depth of valance between 6 in. and 12 in. is best. A frilled valance is made in very much the same way as a small curtain and after deciding the depth of the frill the amount of fabric required can be calculated. The valances may be made from strips of the main curtain material, which are cut from across the material from selvedge to

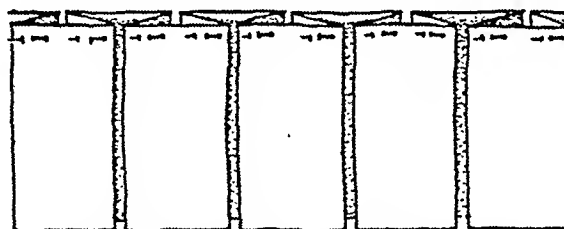
selvedge. To join the strips of material for making a valance length, the selvedge edges should be seamed together. The width of a valance differs according to how it is made; for a gathered valance the length of the strip of material should be $1\frac{1}{2}$ times the finishing width required, i.e., if a finished valance is to be 54 in. wide and 9 in. deep the length of the valance strip should be 81 in. When deciding the depth an allowance should be made for the material taken up by the hem and a heading. The valance frill is measured and cut in the same way as previously described for making unlined curtains, and the pieces are joined together with plain seams, having a turning of about $\frac{1}{2}$ in. The lower edge of the valance strip should be hemmed and the top edge turned over to form a heading. Looped curtain tape of the Rufflette type is stitched over the raw edge of the turned headings and the cords are pulled up to frill the valance until it is of the required width.

Pleated valances which have a more formal appearance than frilled valances can be made in several ways. Pleated valances require a little more care and time in making them than frilled valances—pleated types of valances are more suitable on larger windows over curtains made of heavy fabrics. The length of material required for a pleated valance is approximately 3 times the finished width and this may be obtained by joining strips cut across the fabric width to the depth required, plus an allowance for turning a hem and a heading. To make the most of pleated valances, the pleats formed should be perfectly even and this entails some care in accurate measuring. If it is necessary to join separate pieces, cut across the width of the fabric to obtain the total length required for the valance; the seams should be pressed carefully. Before forming the pleats take up and sew the hem, but leave the top edge of the length of fabric unstitched. The pleating is done with the strip of material placed flat on a table; the width of the pleats may be varied in a valance—for windows of average size a pleat width of 3 in. to 4 in. is sufficient. The appearance of the pleat can easily be viewed by folding a strip of paper into strips of the decided width and pinning it in position against the window. If the paper valance appears too heavy, the width of the pleats should be reduced. Alternatively, if the pleat does not appear sufficiently imposing, the pleats can be made wider. With the suitable width of pleats decided the pleats should then be marked on the strip of valance fabric, using a ruler and a piece of tailor's chalk. This part of the work should be done very accurately and the top edge of the valance should be marked at 3-in. intervals (or whatever the adjusted measurement of each pleat has been decided). This is illustrated in *Fig. 186*, from which it will be seen that each pleat consists of three thicknesses of folded fabric. Commencing from the seam end, the bottom edge of the fabric should be marked off at pleat-width intervals in the same way as the top. With this done the fabric should be folded and a line pressed running from each mark made on the top of the strip to the bottom of the strip. The folds should then be brought together and pinned to form the pleats, as illustrated in *Fig. 186*. When the entire length of the valance fabric has been folded, pressed and pinned, a tacking thread should be run through the

pleats and along the top edge. As each pleat is tacked in position the pins should be removed. With this done, the pleated valance is pressed with a hot iron; the heat of the iron should be suitable to the type of fabric being pressed, and two cloths are used for pressing. One cloth should be dry—the other should be wrung out in warm water. Press only two or three pleats at a time. First, cover the pleats with the warm, damp cloth and press well; remove the damp cloth and cover the pressed pleats with a dry cloth and go over the dry cloth with the iron—work along the complete strip in this way until all the pleats are neatly pressed. Leave the valance for a few minutes until the steam rising from the fabric has completely dispersed. With this done, turn over the top edge to form a heading and stitch



FOLDS PRESSED IN



PLEATS PRESSED INTO POSITION

Fig. 186.

crown webbing or pocketed tape in place as previously explained in describing headings. The pleated valance is then attached to the valance rail, the method of attachment being according to the type of webbing or tape used, as previously explained.

Pelmets may be rectangular in shape or the bottom edges of the pelmets in a room may be shaped to repeat some feature of the furniture—for instance, the back of chairs. Some simple examples of shaped pelmets are illustrated in *Fig. 187*. In most cases pelmets are made of the same material as that used for the curtains over which the pelmet is to be hung, but in some cases, especially if the window under treatment is a large one, the pelmets may be made of different materials from the curtains. For example, a plain fabric of a colour to match or pick up the colour of the walls or the main colour in the curtain materials may be used for

the pelmets. The width of a pelmet must be sufficient to cover the full width of the window, plus an extra allowance at the ends to go round and cover the edges of the pelmet board or valance rail, and the ends of the pelmet should touch the walls on either side of the window.

To make well-fitted pelmets very accurate measuring is necessary, and the best way of obtaining a perfect fit is to use a paper pattern. Patterns for pelmets may be purchased, but these should be carefully tried against the window and tested for accurate fitting before being used. In most cases it will be found quite a simple matter to make patterns from strong, brown paper; alternatively a length of thick wallpaper may be used for making pelmet patterns, and kitchen shelf papers are

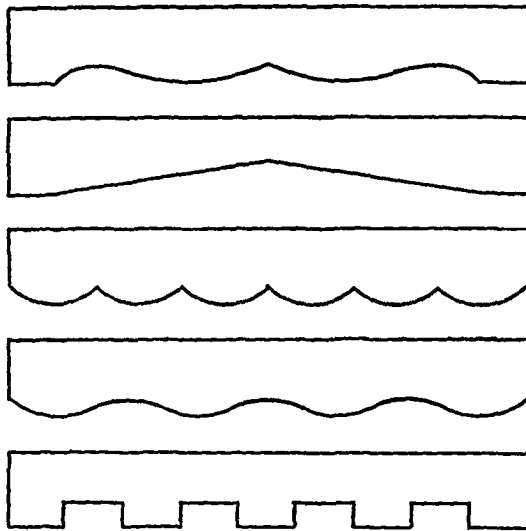


Fig. 187.

also suitable for this purpose. The outlines of the pelmet are marked on the pattern paper with a piece of chalk and the bottom edge of the pelmet may be straight or shaped according to individual taste. For most small windows a straight-edged pelmet provides a most attractive appearance. If two small windows are set fairly close together the pelmet strip may be taken across both windows and this makes a more imposing arrangement—two small pelmets side by side look rather scrappy. To make a straight pelmet, the material is marked out with chalk and a straight edge, making sufficient allowance for turnings.

When making plain pelmets, care should be taken to ensure that all edges of the pattern are placed on the straight of the material before cutting out. In the case of a pelmet with a shaped bottom edge, some difficulty may be encountered in making both ends exactly the same shape. This may be overcome by folding

the pelmet paper neatly in half and marking one side only to the shape required; the chalked outline of the folded paper is then cut through with a pair of scissors.

When making a shaped pelmet it may also be found difficult to decide the most suitable lengths for the deepest and narrowest parts of the shaped edge. The best way to overcome this difficulty is to cut out the pelmet pattern rather deeper than

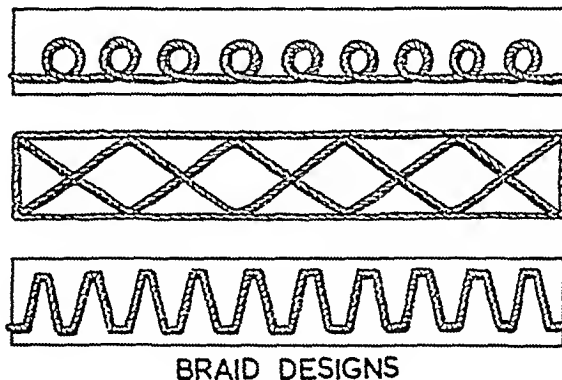
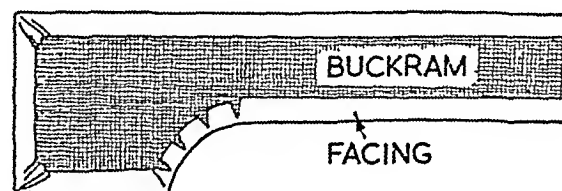
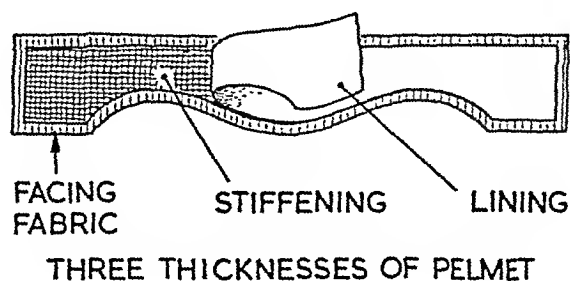


Fig. 188.

the actual requirements, then try it against the window on which it will be used. With this done the top edge of the paper pattern may be trimmed to adjust the pelmet to the most suitable depth. With the pattern made and checked the making of the pelmet may be commenced; there are three layers of material to a pelmet, as illustrated in *Fig. 188*. These consist of the main fabric which faces the pelmet, the stiffening and the lining at the back of the pelmet. The lining material for pelmets may be a cheap sateen or casement and these are especially made and

sold for this purpose. In some cases it may be possible to make good use of old curtaining materials for lining pelmets, but it should be appreciated that a well-made pelmet has a life of several years and it would be false economy to line a pelmet with pieces of old material which are nearly worn out. The stiffening material, which is placed between the lining and the facing material, should be brown buckram such as is used in upholstery; this is obtainable from stores dealing in soft furnishing materials. White buckram and black buckram, as used in dressmaking, are not stiff enough for use in pelmets. Both the lining and stiffening materials are usually supplied in widths of 36 in. In the case of large pelmets it will be necessary to cut both the linings and stiffenings in strips which should be joined at the edges to make the complete width. Brown buckram is easily joined at the edges by overlapping the pieces for about 1 in. and pressing the overlapping edges with a hot iron used over a damp cloth. With this done the pieces should be left flat on the ironing table until they are cold and dry, when it will be found that the lapping pieces of buckram are firmly stuck together. With the buckram flat on a table the paper patterns should be placed over the lining and adjusted so that any joins in the buckram are balanced along the length of the strip. The paper pattern is best held in place over the lining material with paper clips, or drawing-pins, as ordinary dress-maker's pins will be found difficult to use with the stiff materials. With the pattern firmly positioned, mark round the outline of it with tailor's chalk, and while doing this re-check the top edge to make certain that it is perfectly straight or it will be found extremely difficult to finish and hang the pelmet. The paper pattern is removed from the buckram and the stiffening is cut to shape—it is not necessary to allow any turnings on the buckram. The paper pattern should again be used for marking and cutting to shape the main material and the lining; both these materials should be cut larger than the pattern to allow 2 in. all round for the turnings. To assemble the pelmet, place the main fabric flat on the table with the wrong side of the material upwards and smooth the main piece out so that it lies perfectly flat. If there are any creases in the soft fabrics these should be pressed out with a warm iron. The buckram is placed on the material and is held in place with drawing-pins. The drawing-pins should be placed well away from the edges of the buckram.

The main fabric and the buckram stiffening are joined by wetting the edges of the buckram with a damp sponge; the edges of the main material are then turned over on to the dampened buckram and the edges then gone over with a hot iron which firmly secures the fabric to the buckram—this is illustrated in *Fig. 188*. At curves, along shaped edges, and at corners, it will be necessary to make cuts in the edges of the material so that the turnings lie flat on the buckram. With all the edges secured the lining piece should be placed over the buckram right side up and the edges of the lining material should be folded under to make the lining about $\frac{1}{4}$ in. all round smaller than the pelmet. The turnings should be pressed as they are folded, then slip stitched all round the pelmet. The lower edge of the

pelmet, straight or shaped, may be improved by finishing with a fancy braid or a short fringe; either material is sewn on the right side of the pelmet, using a small running stitch. The braid may be mitred over the curtain to neaten it and it may require pleating and easing in a little along shaped edges so that it lies quite flat. Alternatively a plain pelmet may be finished by attaching braid to form a pattern, and this is particularly suitable where the curtains are plain; the braid lends an added touch of colour to the window. Some suitable designs for braid-finishing patterns are illustrated in *Fig. 188*. If used in this way the braid is best attached to the material and buckram with a stabbing stitch before adding the lining. Alternatively, the braid may be attached to the main material with a good fabric adhesive.

Pelmets may be attached to the edges of pelmet boards with small large-headed nails of a suitable colour.

Net or Lace Curtains: In many cases lace or net curtains are hung straight across the bottom half of a window, but there are many ways in which net or lace curtains may be hung to vary the usual arrangement. Curtains of this type may be draped so that they cross over each other, and looped back to the sides of the windows they give a very graceful appearance to suit almost every type of window. This arrangement is particularly suitable with long windows.

Net curtaining material may be purchased with a frill along each side or a frill may be added to the sides of plain net material to provide an added touch of individuality. These edged nets may be hung flat against the window and looped up as described above. When measuring for looped curtains allow $1\frac{1}{2}$ times the width of the glazed part of the window for each curtain. An additional 2 in. should be added to the length of each curtain for the top and bottom hems, and each curtain should be cut an extra 6 in. to 12 in. depending how much it is intended to loop them. If frills are to be added to plain curtains they should be cut straight across the net or lace from selvedge to selvedge and a suitable width for the strips for the frills is 2 in. to 3 in. The joined strips should be almost twice the length of the curtain and, if the curtain is to be frilled along both sides, the frilling strips will be four times the length of the curtains, plus double the width of each one. The strips of net from which the frills are made are best joined with tiny french seams and well pressed. With this done, a very narrow hem should be stitched along one edge of the frill. If it is found difficult to make pins hold fast in net or lace, very fine hairpins may be used instead of ordinary pins. A narrow single turning should be folded over and tacked along the unsecured edges of the frills; with this done the edge of the curtain should be marked off into 18-in. sections and each 18-in. measuring point should be marked with a pin over a tuft of coloured cotton; the tacked-in edge of the frill is then measured into 27-in. sections. With all the frill measured, run a gathering thread along the first 27-in. section and pull the gathering threads up until the 27 in. is reduced to 18 in. With this done the first section is stitched to the first 18-in. section of the curtain;

the rest of the frill is attached to the curtain in the same way, pulling each section of the frill up before attaching it to the main material. This method of frilling prevents the frill gathering into twists and knots, also the gathering will be even along the complete length.

Small windows may be successfully covered with small net or muslin curtains falling away from a centre point of the window; this type of curtain is illustrated in *Fig. 189*. To estimate the amount of material required for each curtain, measure the length of the curtain, and to the curtain lengths add sufficient extra to make *two* headings and *two* casings. The width of the window should be measured and side turnings should be allowed unless the net or muslin is obtainable in a suitable

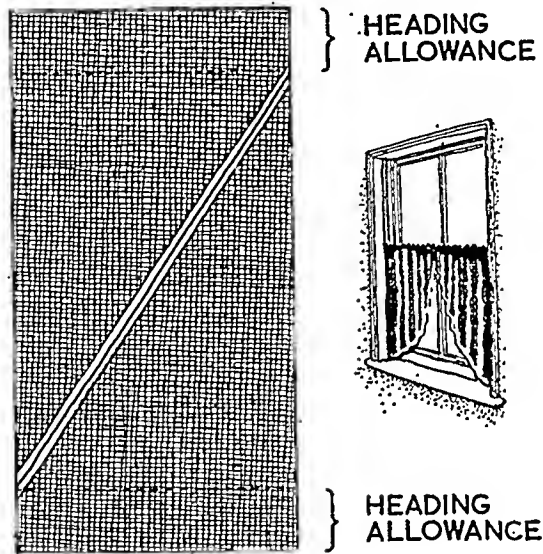


Fig. 189.

width to eliminate the necessity of making side hems. The measured and cut pieces of material should be placed flat on a table and a length of coloured cotton used to mark off sufficient material for a heading *and* casing at each end of the curtain length. Still using the coloured cotton, run a diagonal line from one coloured marking cotton to the other as illustrated in *Fig. 189*. A piece of bias binding is then laid along each side of the diagonal line (*Fig. 189*), and a pleasing touch of colour may be introduced at this stage by using binding of a contrasting colour to the main material. Sew the binding into place, then stitch through the net curtain between the bindings. Turn the binding over and stitch the other edge to make two triangular curtains with the bound edge as illustrated in *Fig. 189*. Place the two curtains together as shown in the illustration and join them in the

centre along the short straight edge. The headings and the casings are then made in the usual way.

Plastic Curtains: The use of plastic curtaining materials is practical for bathroom and kitchen windows. Headings and hems are made in exactly the same way as for fabric curtains and looped tape is also used in the same way as for fabrics. Hems are not necessary unless they are particularly desired, double turnings also are not necessary. Plastic curtaining materials may quite easily be stitched by machine if one of the following methods is used:

(a) Strips of thin paper should be placed each side of the plastic material before stitching, and the paper torn away after stitching.

(b) A little french chalk is rubbed over the plastic material before stitching.

(c) Machine oil is rubbed over the plastic material before stitching and the oil should be wiped off after stitching.

Plastic curtaining materials should always be sewn with a very light tension on the machine and curtains of these materials should *never* be pressed with a hot iron.

Dressing-table Curtains: Any small table or even a shelf, fixed at a suitable height, can, with the addition of a small hanging or standing mirror, become a very pretty dressing-table with the aid of a curtain. These curtains are made in the same way as an unlined window curtain, but as the drop will be shorter it is important to avoid materials with too large patterns. Depending upon the style of decoration and the furniture in the room, try to select a small patterned cretonne, cotton or rayon material, chintz, organdie, nylon. In some cases curtain net can alone be used, but where the material is transparent it will be necessary to use it over a second material. Inexpensive taffeta or sateen is a good choice for the inner skirt. This is especially attractive if used in a deeper colour than the transparent material. Some of the floral patterned plastics make good dressing-table curtains as they require only wiping clean. Before deciding on the amount of material required, it will be necessary to decide on the treatment of the table-top. There are several ways in which this can be finished. Probably the best plan is to have a sheet of heavy glass cut to fit the table-top. The top can be either painted, or polished, or a piece of the fabric used for the skirt could be laid under the piece of glass. This makes a very hard-wearing and easily kept clean dressing-table top or a fitted top of the curtain material can be made to fit the table or shelf. While looking very decorative, this has one drawback; the top of the dressing-table will probably become soiled much more often than will the skirt and yet, if washed more frequently, may fade to a lighter colour. This can be overcome by making a cover of transparent plastic to fit over the top of the table.

The curtains for the dressing-table should be cut straight across the material from selvedge to selvedge and the selvedge seams should run down the depth of the dressing-table skirt. Several widths of material will be needed and it will be necessary to measure round the table to calculate the total length of fabric required to give the necessary fullness. Add an extra 3 in. on each width to allow for hems

and turnings. To obtain an attractive fullness the width of the curtain will require to be at least one and a half times the measurement round the table, and may even require as much as three times the measurement for skirts made of very thin materials such as organdie or nylon.

The curtain can be made as one very wide curtain, or it can be made as two curtains which meet in the centre front. If the table has a small drawer the second curtain method will be best, as this will allow the drawer to be opened and shut easily. Cut the material into straight strips, allowing turnings already given, and seam the selvedge edges together to get the complete width required. If the selv-edges are tight and the seams inclined to pucker it will probably be necessary to make small diagonal cuts along the selvedge but keeping them from touching the actual stitching. Press each seam well as you work, pressing the seam open so that one turning lies flat on each side. Finish the bottom edge with a narrow hem, if necessary inserting small lead weights to make the curtain hang well. Turn over and seam a narrow hem up each side of the curtain.

If the top of the table is to be covered with glass, the top edge of the curtain can be made in the form of a small hem, just deep enough to take a curtain wire comfortably. The top can be finished with Rufflette tape and a curtain railway attached to the underside of the dressing-table top from which the curtain can hang by means of small hooks or rings. However, if the top of the table is to be covered with the same material as the curtain, cut the widths ready for making up the curtain and join them as already explained. Then cut out a piece of material the exact size and shape of the table-top, allowing $\frac{1}{2}$ -in. turnings all round. This must be cut very accurately so that the seam will lie exactly over the table edge. A strip of fabric long enough to go right round the table-top must now be cut; it will probably be necessary to join several pieces to get the required length. The depth should be sufficient to cover the top of the curtain and allow for a narrow hem. This should be joined to the piece cut for the top and the seam piped with a contrasting material.

The lower edge can either be finished with a piped hem, or alternatively, the bottom edge can be finished with a narrow 'gimp'. If the table is not very large, the curtain can be attached to the edge of the top piece. To do this prepare sufficient piping to go round the edge of the table-top, then cover the upper edge of the curtain so that it exactly fits the edges of the table-top piece. Join the curtain to the top piece, inserting the piping between the seam. This seam should be made as small and neat as possible so that the curtain will fall with equal fullness all round the dressing-table.

If the table is on the tall side, it may look better with a tiered curtain. The top tier should be between half and two-thirds of the length of the lower tier. Make up both curtains separately, then place the top curtain on the lower one so that the top edges are exactly together. Press these over together to form a double casing through which the wire can be threaded.†

BEDDING AND HOUSEHOLD LINEN

Supply and Care—Irish linen—initial stocking—replacing—linen and cotton mixtures—storing linen—amount of linen required.

MATTRESSES. *Choice—purchasing—hygienic fillings—types of mattresses—feathers—interior sprung—independent pocketed springs—interlocking springs—upholstered rubber—cleaning—care—repairs.*

PILLOWS. *Down feather—latex foam rubber—kapok—washing pillows—repairs.*

BLANKETS. *Variety of choice—care—washing.*

SHEETS. *Choice of colour—making sheets at home—sizes—care—borders.*

PILLOW-CASES. *When purchasing—coloured trimmings—making—materials and sizes—housewife style tape fastenings—button fastenings—repairs to pillow-slips.*

BEDSPREADS. *Throwover style—sizes—piping—central decoration—ruched panels—pillow fold—patchwork—choice of materials—candlewick—transfers—looping thread.*

TOWELS. *Choice—roller towels—hand towels—guest towels—washing—repairs.*

BEDDINGDOWNS. *Filling—covers—care—washing and dry cleaning—refilling—recovering.*

TABLE LINEN. *Choice of fabrics and styles—fitted gingham cloth—mats for a round table.*

Of all the branches of home maintenance that contribute to the comfort of a home, that of supplying and caring for the bedding and the household linen is one of the greatest importance. Although the modern housewife does not keep such a large stock of linen as did the housewives of other days, a well-stocked linen cupboard can make the task of running a home so very much easier. Articles of bedding and of household linen are never very cheap, but after being purchased they do last a considerable time if carefully looked after. The business of stocking a linen cupboard is one to which careful thought and consideration should be given, and this is a case in which it rarely pays to buy materials of the cheapest quality, depending, of course, on the financial standing of the housewife. For instance, real Irish linen of fine quality has the reputation of lasting for more than one lifetime, and articles of this quality are often passed down in a family for several generations. Although few modern housewives can afford to buy Irish linen of this quality, they should set out to obtain linen of as good a quality as they can possibly afford, and after the initial stocking, a stock of good quality linen will only need replacing one piece at a time over a number of years. A good quality mixture of linen and cotton is not over-expensive, and has hardwearing properties which will give years of faithful service.

Storing Linen: The storage of linen is just as important to its long life as the selection of good quality materials. Household linen should never be stored in an

airing cupboard, as the continual exposure to warm air tends to weaken the fibres of the linen—prolonged storage in an airing cupboard will eventually considerably reduce the useful life of the articles. Linen is best stored in a cupboard that is not heated, merely being passed into an airing cupboard just before use. The shelves in the cupboard on which the pieces of linen are to be stored should be slatted rather than solid to allow the air to circulate freely through the pieces.

Household Stock of Linen and Bedding: The average household will require a certain minimum amount of household linen and bedding, and the table on page 405 should be regarded as a basic one, which, of course, it will be necessary to increase in homes where there are small children or where much entertaining is done.

Mattresses: Most people vary a great deal in their likes and dislikes of mattresses, and the choice of a mattress is a very individual matter which can only be decided by the person who is going to use it. Mattresses are items which in all probability, if of good quality and reasonably cared for, will last for many years, and when purchasing mattresses it is advisable to give the matter of selection some careful thought. It may be accepted that all the well-known branded makes of mattresses are completely reliable; when purchasing a mattress it is perhaps advisable to ensure that the one of your selection is made by a reputable firm. If this is done it will not only result in the purchase of a well made and soundly constructed mattress, but it does ensure that the stuffing used for filling the mattress is hygienically pure—this cannot always be said for mattresses of the cheapest quality. The type of mattress chosen will depend upon personal taste, some people prefer hard mattresses to soft ones. There are four main types of mattresses which are easily available at local department stores, furnishing shops and bedding centres.

(1) *Feather Mattresses:* Although a little old-fashioned this type of mattress is preferred by many people who enjoy sleeping in a warm soft bed. A cross-section of a feather mattress is illustrated in *Fig. 190*.

(2) *Interior Sprung Mattresses:* This type of mattress is preferred by people who like a soft bed, and for this sort of person an interior sprung mattress with independent pocketed springs will be found best (see *Fig. 190*). Those who like interior sprung mattresses, but prefer them harder, should choose one with an interlocking spring as shown in cross-section in *Fig. 190*.

(3) *Upholstered Mattresses:* These mattresses, which are illustrated in *Fig. 190*, are filled with coiled hair or wool and are usually on the hard side.

(4) *Rubber Mattresses:* A rubber mattress of the latex foam type with girder-like sections is illustrated in cross-section in *Fig. 190*. They are very soft and cool. These mattresses have hard-wearing qualities and are regarded by most people as being extremely comfortable. Use of this type of mattress on a bed requires a thick under blanket.

Cleaning and Care of Mattresses: Modern mattresses are easy to keep clean and cared for. They simply require a regular brushing to remove dust and fluff or

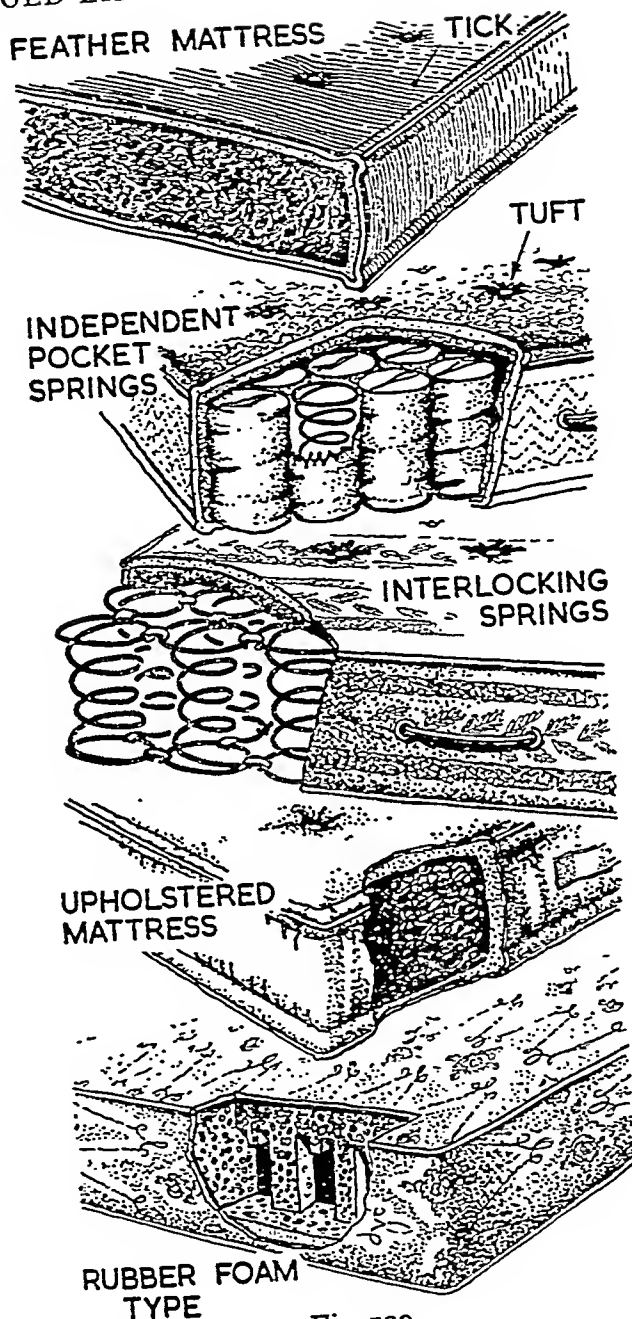


Fig. 190.

better still they may be dealt with by using a suitable vacuum-cleaner attachment. All mattresses should of course be turned at regular intervals.

The tufts should be given special attention as these are the points at which dust and fluff collect. The frequency of turning a mattress depends on the type. Upholstered

stered mattresses of the solid type should be turned over every few days from side to side, alternating with turnings from end to end. Interior sprung mattresses should only need turning once every few weeks. Feather mattresses require very little care except shaking to keep them free from dust. A daily shake is all that is required to keep a feather mattress in good condition, with an occasional airing out of doors. The tick should be renewed when the feathers commence working through in any quantity.

Repairs to Mattresses: Professional charges for recovering or remaking a mattress are usually very reasonable considering the amount of work involved, and there is not a great deal which can be done by the housewife. If a hair or flock mattress becomes uncomfortable, this is due to the stuffing becoming packed into tight lumps, which causes the mattress to lose its resilience. The only cure for this condition in a mattress is to remake it completely. The hardness may be alleviated to some extent by beating the mattress all over on both sides with a carpet beater and mattresses of this type should be frequently dusted or vacuumed to prevent the dust penetrating the cover. This type of job is of course one which is best done outside the house.

Loose buttons or tufts of mattresses should be replaced as soon as their loss is noticed. If this is not done the stuffing spreads and works out of place, thus making the mattress lumpy and uncomfortable.

A button or leather tuft is replaced as illustrated in *Fig. 171*. To do this, thread an upholstery needle with string, fine twine, or thread, and pass the needle through the mattress at the point where the tuft was originally fastened. If the tuft is a leather one it is necessary to pass the needle through the centre of the leather and back again through another hole about $\frac{1}{4}$ in. away from the first one, then again through the mattress at the same point as before. With this done the thread should be pulled up tightly, the needle run through another circle of leather, and passed back through the mattress so that the threads are between the mattress cover and the leather circles as shown in the illustration. Whatever the shape or type of tuft or button the securing threads should be pulled tightly together and tied off firmly.

PILLOWS

Modern pillows may be grouped under four main headings as listed below:

- (1) Down.
- (2) Feather.
- (3) Latex foam rubber.
- (4) Kapok.

Pillows of down or latex foam rubber are rather expensive, but they have very hard-wearing properties, and will last for a considerable number of years. Feather pillows are very soft and are quite inexpensive; they are also very hard-wearing.

In addition to the types listed above, it is possible to purchase pillows stuffed with a mixture of down and feathers. Kapok-filled pillows are inexpensive, but they are not always very satisfactory, as they have a tendency to go lumpy in use.

Washing Pillows: All pillows should be washed now and then. The job of washing pillows is not as difficult as it may sound. A pillow is best washed by putting it in a bowl of fairly hot water which contains either detergent or pure soap flakes. The pillow should be gently squeezed and kneaded until it is clean. After washing pillows it is necessary to rinse them, changing the water several times to ensure that no soap remains. Wet pillows are quite heavy objects and they should be tied to a strong line to dry, or to the branch of a tree. While a washed pillow is drying it should be shaken from time to time to ensure that the filling does not become matted into hard lumps. Obviously the job of washing a pillow should be undertaken on a sunny, breezy day.

Repairs to Pillows: Pillows should last for many years before it becomes necessary to repair them. It may sometimes become necessary to recover a pillow according to the amount of wear it receives. If this has to be done, the covering material should be feather-proofed ticking. The inside of the covering material should be rubbed over with a wax candle and special care should be given to waxing the seams to make them feather-proof.

When joining old and new pillow tickings, to transfer the filling, leave an opening of about 10 in. to 12 in., and leave an opening about the same size in one short seam of the old covering. Then if the two openings are stitched together it will be found quite an easy job to transfer the filling from one ticking to the other. Run a gathering thread along the new ticking about 1 in. below the opening to prevent the feathers escaping, then release the stitching joining the old and new tickings together and remove the old covering. The opening in the new cover should be securely seamed to complete the job.

BLANKETS

The quality of blankets has a great bearing on the comfort of a home. Blankets are obtainable in a very wide variety of weights, colours and sizes. They are also obtainable in a variety of prices and generally speaking the cheaper blankets are the heaviest as they contain a large percentage of cotton. This does not necessarily mean that they are the warmest. It is considered that the warmest blankets are those of pure wool, and cotton blankets give weight without extra warmth. Cellular blankets are very light, and are also very warm—these lightweight blankets are extremely suitable for children and invalids.

Blankets may be purchased in many different colours and they may be used as part of the decorative scheme of a bedroom, to pick up one of the colours of the general scheme. This however has the disadvantage that coloured blankets may only fit into the colour schemes of one or two of the bedrooms in a home, and

then when redecorating is done, blankets of too definite a colour may restrict the householder in the choice of colours for the decorative scheme.

Care of Blankets: The general care of blankets is very simple. All that is required is to take them out of doors now and again and give them a good shaking. Blankets should be aired in strong sunlight if possible, to discourage moth. If they are stored during the summer months they will keep best if wrapped in newspaper and if folded in with them is a quantity of moth-repellent. Special mothproof bags may be purchased for storing blankets. Genuine Witney blankets may be sent back to the weavers for cleaning and resurfacing; particulars of this service are obtainable from shops where Witney blankets are purchased, or from the manufacturers, whose tab is stitched to the blanket.

Washing Blankets: It is essential to dry blankets quickly and therefore they should be washed on sunny, breezy days. If a washing machine is available, it will be found quite a simple matter to wash blankets. If the housewife has not a washing machine, the blankets may be washed in a sink or bath filled with warm soapy water. Soap flakes or detergent powder may be used for washing blankets, and whichever is used it is important to use plenty so that a good lather is kept up. Each blanket should be kneaded and squeezed until it is quite clean, and it is then necessary to rinse and wash the blankets in several changes of clear water, wringing the blankets between each rinse. While the blankets are drying they should be shaken from time to time, this will help to revive the surface.

SHEETS

The modern housewife has an excellent choice of style and colour when purchasing sheets. These can be of plain white linen beautifully hem-stitched, and embroidered in white, or colour may be added by embroidering the sheets with coloured threads. Pastel colours are excellent for bed linen and if extra decoration is required, sheets in pastel shades of colour, look well embroidered in white. Patterned sheets in pin-spots or candy stripes always look fresh and gay, and if of good quality will stand up to repeated laundering very well. When choosing embroidered bed linen, try and select designs which are restricted to one corner of the sheet or pillow-case, or which run across one end—over-embellishment in the form of embroidery can make for discomfort in use.

Sheets and pillow-cases may be made at home and in this way it is possible to build up a set of bed linen exactly to individual design. If sheets are bought ready made, a quality mixture is better than a cheap imported linen or cotton. Unless real Irish linen is available and can be afforded, a mixture of cotton and linen known as 'Union' or good quality cotton sheets are the best buy. For very hard-wearing bed linen, cotton twill, either bleached or unbleached, will be found suitable. Some house-wives like to use flannelette sheets in winter, or on beds for young children. Flannelette sheets are very comfortable, soft and easily washed.

Sheets and pillow-cases may be made at home or purchased in three standard sizes. These are for small single beds, wide single beds and to fit double beds. When buying a sheet it is advisable to measure the bed first and to select a sheet which allows plenty of margin for tucking in all round. Sheets are now available in the shops with shaped bottom corners to fit over the ends of mattresses, and sheets of this kind make a bed more comfortable as they cannot become untucked.

Care of Sheets: All linen sent to an outside laundry should be marked with mark-

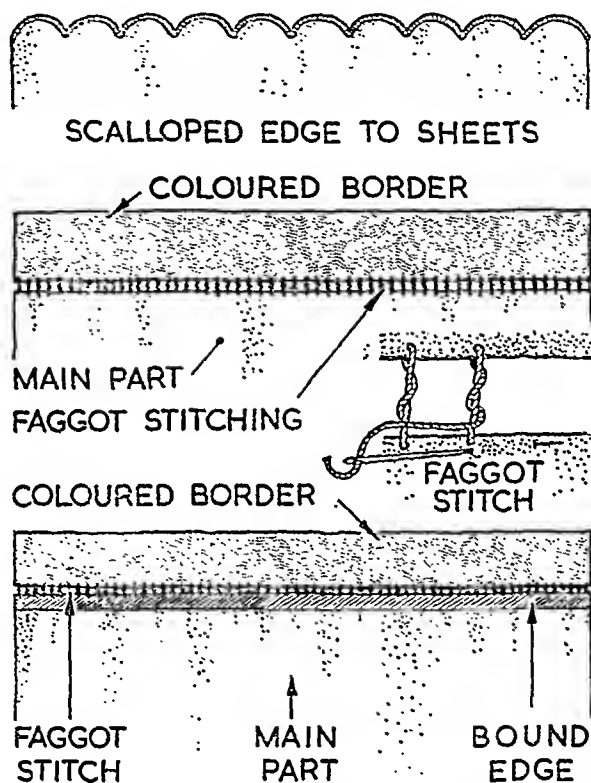


Fig. 191.

ing ink or name tabs with the housewife's name and initial. On its return from a laundry, bed linen should be aired and stored in a linen cupboard. Sheets should be folded as few times as possible, because over a period the sheets may wear along the fold.

Much can be done to increase the life of sheets by careful repairs when they become necessary. The most usual type of repair to a sheet is to change it 'sides to middle'; this is done when sheets begin to wear thin in the centre. The repair is effected by cutting down the centre of the sheet longways, and turning the pieces, so that the centre cut edges become the outside edges. The parts should

be stitched together down the centre, keeping the seam as flat as possible. The raw edges at the sides will need hemming or binding.

Making Sheets: Some housewives prefer to make their own sheets, although it may not be more expensive to purchase ready-made sheets. Other housewives purchase good quality plain sheets, and then decorate them themselves, to make them into attractive sets to match the different colour schemes of the bedrooms in which they will be used. Sheetting of various qualities may be purchased by the yard, and it is sold in widths to correspond with the standard sizes of sheets. To make a sheet it is only necessary to measure the length of the bed and buy that amount of material in a suitable width, allowing extra length for tucking in. The sheet material is made up by turning the selvedge sides over and stitching them up each side to make narrow hems. The top hems of home-made sheets should be 2 in. to 3 in. wide so that they may form a decorative border when turned over the blankets on the bed. The bottom hems of sheets are usually narrower than the top hems. The bottom hems are best turned and stitched on the wrong side of the sheet, but the top hems should be stitched on to the right side so that the hem is on the underside when the top of the sheet is turned over on the made bed.

Coloured or patterned borders add attraction to sheets, and these may be made to pick up the colour of the curtains or the bedspread in a room. If only a small touch of colour is required the top edge of the sheet may be bound with coloured bias binding. This looks additionally attractive if the top edge of the sheet is scalloped as illustrated in *Fig. 191*. When using binding for scalloped edges, the binding should be cut on the true bias, and it is important to make quite sure that the colour of the binding is perfectly fast. The scallops should be balanced so that a full scallop is formed in the exact centre of the sheet edge. There are two ways in which a coloured border consisting of a single colour can be attached to the top of the sheet. These are illustrated in *Fig. 191*. This illustrates how a narrow hem can be turned and a narrow border attached to the hem by faggot stitching. Alternatively (*Fig. 191*) the top edge of the sheet may be bound with a coloured material and the border faggot stitched to the binding.

PILLOW- AND BOLSTER-CASES

Pillow- and bolster-cases are usually bought ready made, or they can be made by the housewife to match the sheets with which they will be used. White pillow-slips trimmed with colour are fashionable when used with sheets in the colour of the pillow trimmings, or with plain white sheets. As with all types of household linen, the choice of colour and decoration of pillow- and bolster-cases is purely a matter of personal taste. Bolsters are not used very much in modern homes, most housewives prefer the use of two pillows. Where bolsters are used the cases may be treated in the same way as the pillow-cases used with them.

Pillow-cases are quite easy to make at home and there are several styles in which

BEDDING AND HOUSEHOLD LINEN

they may be made to choose from. They may be made with plain seams for the sides and bottom, finishing at the open end with tapes, buttons, or fold-over (known as housewife) ends. Alternatively the pillow-cases may be made with a fancy trimming at each end, or with a frill round all four sides.

Materials and Sizes: Pillow- and bolster-cases, whether bought or made at home, should be of a linen or cotton slightly lighter in weight than the material of the

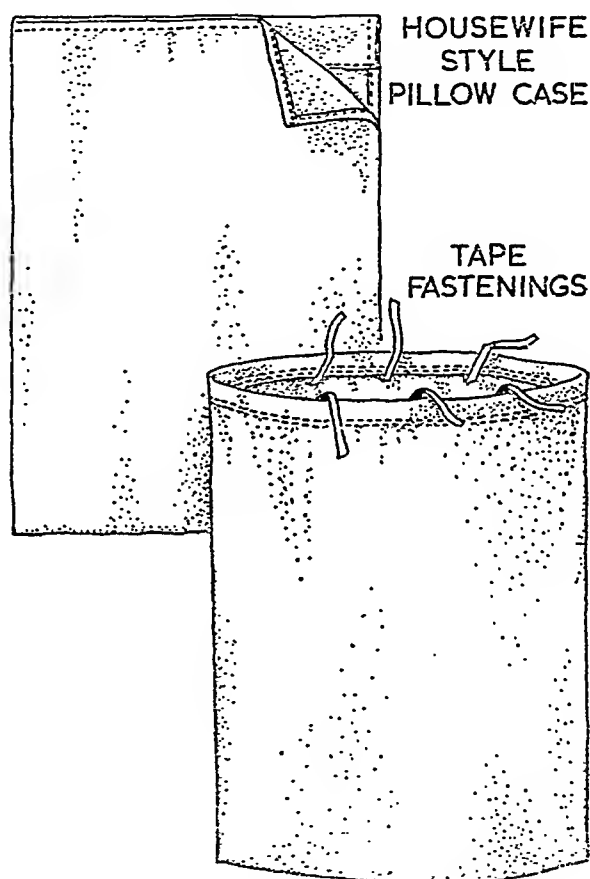


Fig. 192.

sheets. The standard sizes of pillows are 20 in. by 30 in., or 27 in. by 30 in., but it must be remembered that pillows may vary in size and they should, of course, always be measured before buying pillow-cases for them. Where fancy pillow-cases are used it will be found best to select a plain fine, white case for use over the ticking and under the main pillow-case. This prevents the possibility of feathers creeping through the ticking, and the use of a lining case prevents the ticking from becoming stained.

Making a Housewife Style Pillow-slip: This style of pillow-slip is illustrated in *Fig. 192*. For a plain untrimmed slip of the 20 in. by 30 in. size, a piece of material 22 in. by 68 in. will be required. This amount allows $\frac{1}{2}$ -in. turnings on both sides. There is no seam along the bottom of the pillow-case, as the length of material

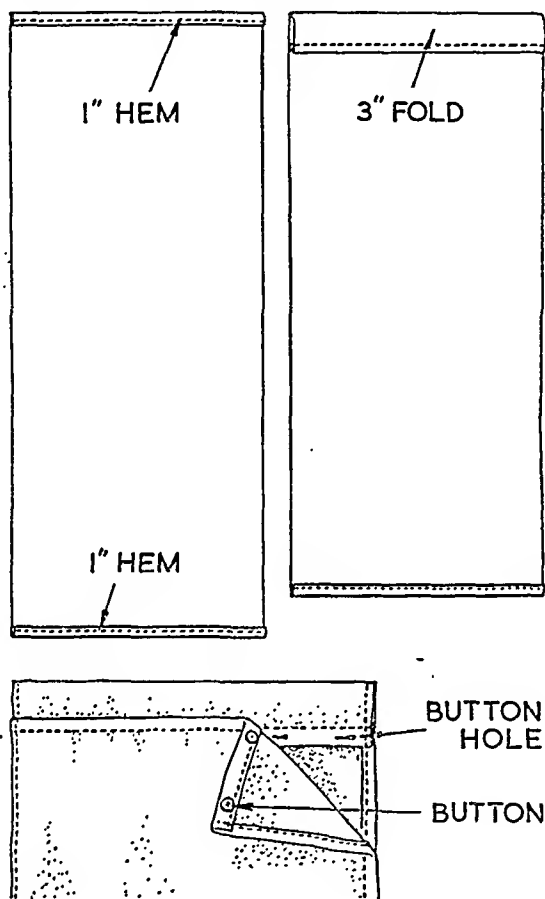


Fig. 193.

is folded to form a double cover. A $\frac{1}{2}$ -in. hem should be turned over along both ends of the material, as illustrated in *Fig. 192*. One of the narrow ends is then turned over to a depth of 6 in. The opposite end of the strip of material is brought up to meet the fold and both sides are stitched together as shown in *Fig. 192*. The pillow-case is then turned right side out and pressed.

Making a Pillow-slip with Tape Fastenings: A pillow-slip with tape fastenings is illustrated in *Fig. 192*. The pillow-case is made from a length of material equal

to the width of the pillow plus 3 in. The length of the strip is the length of the pillow plus 3 in., and this total should be doubled to allow for both sides of the pillow-case. For a pillow which measures 20 in. by 30 in., the piece of material to make the cover should be 23 in. by 66 in.; a 3-in. hem should be turned over along both ends of the material. Pin the hems down and insert the ends of three tapes under each hem, with the tapes exactly opposite each other as shown in *Fig. 192*. Make one row of stitching across the hem, then another row of stitching $\frac{1}{2}$ in. higher, and the same at the other end of the length of material. Fold the material so that the two ends meet and join the sides with narrow french seams.

Making Pillow-slips with Button Fastenings: The two types of pillow-slips described above are those in most general use, but some housewives prefer slips with button fastenings. The simplest way of making slips with button fastenings is to cut a length of material equal to twice the length of the pillow plus 5 in. extra for turnings by the width of the pillow plus $1\frac{1}{2}$ in. Commence making the case by making a turning at both ends to a depth of 1 in., then turn down the top of one end to a depth of 3 in., as illustrated in *Fig. 193*. The strip of material should then be folded, and the other end placed so that it laps the prepared end by 1 in. With this done, both ends should be firmly stitched together for a depth of $2\frac{1}{2}$ in. as shown in *Fig. 193*. The sides of the pillow-case are joined with neat, narrow french seams. To make the button-holes, turn the pillow-slip inside out. Use washable linen or rubber buttons and sew them firmly in place on the inside of the top hem. The button-holes should be cut and made at the end of the under hem, so that when the case is in use none of the buttons or button-holes show.

Methods of Trimming Pillow-cases: There are many ways in which pillow-cases can be trimmed, the most popular method is to embroider a design in cotton or silk. The design chosen should not be too large or it may be uncomfortable in use; the design may be worked along both ends of the pillow-slip or along one end only, or in one or more of the corners. The embroidery is done with self-coloured or contrasting threads according to individual taste, and the design may take the form of the owner's monogram. Coloured frills are easy to attach to the hems of pillow-cases, or the hems can be decorated with narrow borders of lace. Alternatively, hems can be scalloped or bound with coloured binding. Where a trimming is to be added, this is best worked before the case is made up.

Repairs: It is usual for pillow-cases to wear in the middle and there is little to be done to repair them. The best method of repair is to wait until two cases are worn about the same amount, then take the two good sides and make them up into one pillow-case. In this way, the last bit of wear can be obtained from the cases.

BEDSPREADS

A bedspread can be just a 'throwover', a single piece of fabric, or it can be fitted so that it almost comes under the description of being a loose cover. Alternatively

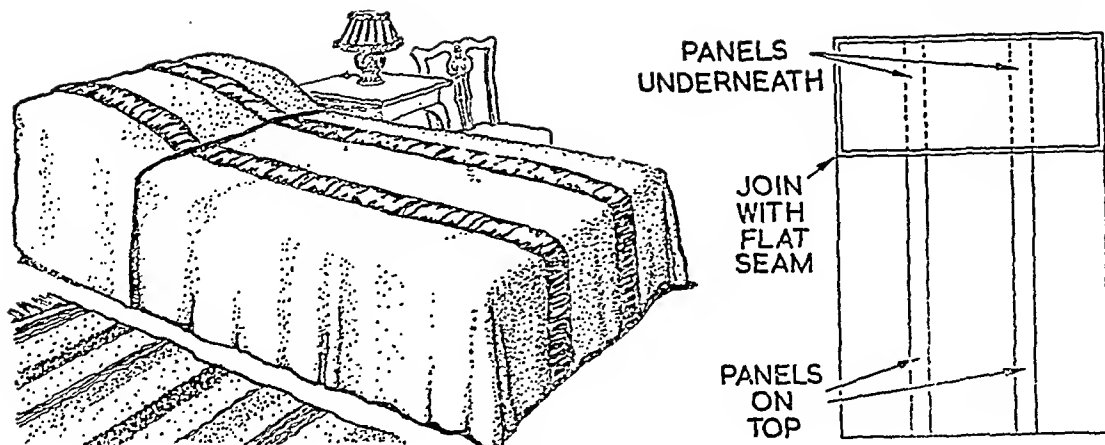


Fig. 194.

it may be quilted, or made of candlewick, in patchwork, or crocheted. The materials which may be used for making bedspreads are widely varied, and almost anything that is fancied may be used. As a bedspread provides a large expanse of colour in a bedroom, it is essential that it blends, and is part of the colour scheme. While the colour of the spread need not match the curtains, most people prefer that it should, or at least that it picks up the main colour of the curtain material. This of course is purely a matter of personal taste.

To make a plain 'throwover' type of bedspread, measure the length of the bed, after it is made up. Add sufficient extra material for a generous tuck-in at head and foot of bed. If the bed is a divan without a foot, the extra allowance of material should be enough to go over the foot of the bed, with the lower edge just clear of the floor. Measure the width of the bed (also after the bed is made up) and add sufficient extra material to the width so that the spread will hang over the sides of the bed and just clear the floor. For a single size bed, 36-in. wide material will be best; for a double bed, choose material of 54-in. or 48-in. widths. In either case two pieces equal to the length required, plus 4 in. to 6 in. for turnings, will be needed. Cut the fabric into two pieces of equal length, then cut one of the pieces down the centre lengthways, so that there are four pieces to be made into the spread. Join one of the narrow lengths to each side of the full-width length. Join the pieces selvedge to selvedge, so that the seam when pressed back will be quite flat. If the selvedge seems at all tight, make small nicks in it, being careful not to cut the stitching. Turn up a hem round all four sides of the spread and stitch to finish the bedspread.

This makes a perfectly plain bedspread, and is most suitable where either the material used or its colour is of a nature to provide sufficient decoration in itself. If something a little more decorative is required, the side seams could be edged

with piping in a contrasting colour, or a very narrow frill may be inserted along the side seams—this is a good method of introducing a second colour into a plain bedspread. A plain linen bedspread could be enriched with an embroidered centre design. The side pieces could be cut half as long again as the main piece, and lightly gathered before being joined to the main piece, so that the sides form a valance round the bed. A plain coloured bedspread may have panels of patterned material appliquéd across it—a circle of appliquéd flowers in the centre would look very attractive, and add a touch of colour and gaiety to it.

In a room where a very feminine appearance is required, a spotted muslin may be used to make a second 'throwover', which is laid over a taffeta or satin bedspread; the colour of the main spread will show through the muslin or voile to give an added interest to the bed.

A more elaborate type of bedspread is shown in *Fig. 194*. In this case the spread is made extra long, so that the bed is made up without the pillows, which are placed on the bedspread and the end of the spread folded back over the pillows, during the day. This involves reversing the top of the bedspread, so that when folded over the top of the pillows, the right side of the material shows. Although this type of bedspread is a little more difficult to make than those described above, it does give a luxurious touch to a bedroom. The foundation of this type of spread is made in the same way as the plain throwover described above. Measure the length of the bed after it is made up, but with the pillows removed. Then make up as before. The part of the spread covering the pillows is made of two lengths of fabric, making as it were a small bedspread the same width as the main piece but only long enough to fold over and cover the pillows. Leave the bottom edge unstitched and reverse the pillow spread so that the ruching is on the opposite side to the main spread. To make the ruching two lengths of fabric 12 in. wide and twice the length of the bedspread will be required. These pieces can be made from several small lengths joined, so that it does not cut extravagantly. Turn over a narrow hem along all sides of the two lengths. The exact width of the hem, which need only be a single fold, will depend upon the material being used. If it is a type which frays badly the hem must be $\frac{1}{2}$ in. to 1 in. in width. A firm material will not require hems of more than $\frac{1}{4}$ -in. width. With tailor's chalk mark lines lengthways on the material and 1 in. apart. Run a gathering thread along each line, and pull the threads up until the lengths of material measure the exact length of the bedspread. Place the spread on the bed, and pin the two ruched strips to the spread, so that the outer edges are in line with the edges of the bed. Stitch along all sides of the ruched strips. The raw top edge of the bedspread and the raw bottom edge of the pillow fold should now be joined with a flat hem (see *Fig. 194*).

Patchwork Bedspread: This bedspread shown in *Fig. 195* is very quickly made. It gives the appearance of bright patchwork, but it should be appreciated that it is not the orthodox method of working traditional patchwork. To make the quick patchwork bedspread, cut a quantity of diamond shapes to the measurements

given in the illustration *Fig. 195*, from as many oddments of material as possible. The more colour and patterns of material the more effective will be the appearance of the finished bedspread. When planning a piece of work of this kind it is important to give some careful thought to the nature of the materials used. Patches of cotton or linen should not be combined with patches of fine silk, nor should thick and thin fabrics be combined. If there is too much difference in the weight of the patches, the heavier ones will pull the lighter ones out of shape.

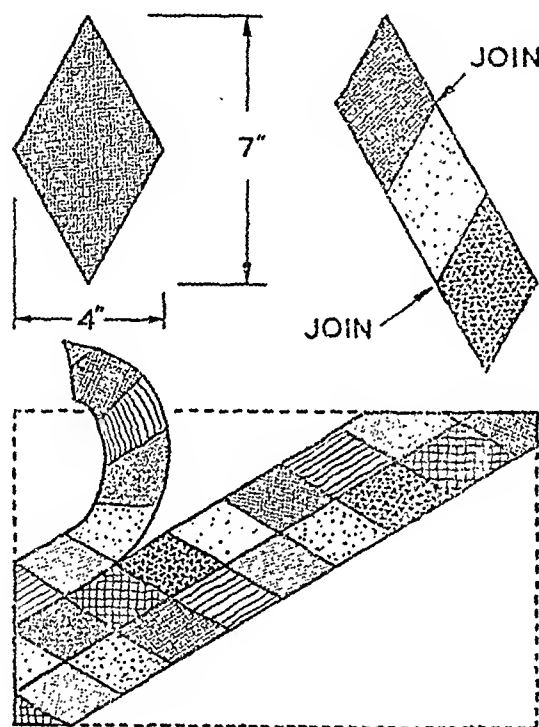
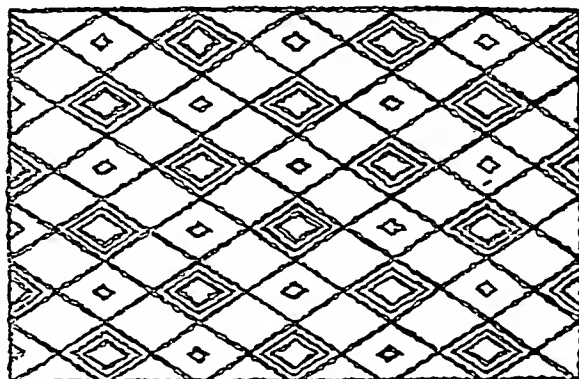


Fig. 195.

Before joining the diamond-shaped pieces of material they should all be pressed and kept quite flat to avoid creasing. After cutting the material into shapes, join the diamonds together to form a long strip; one side only of the diamonds should be joined as shown in *Fig. 195*. Make the first strip long enough to fit diagonally across the bed from the top left corner to the bottom right corner. To continue, join the diamonds together to form strips, reducing the length of each strip by one patch. Join the strips together under the first row until the corner of the bedspread is reached, as illustrated in *Fig. 195*. The second half of the bedspread is

made in the same way, and the two halves are joined. Back the bedspread with lining material, which if available may be made from old curtains, or a worn sheet.

A quilted effect may be obtained if added warmth is required. To quilt the patchwork bedspread place a layer of wadding between the bedspread and the lining, then machine stitch down the rows of diamonds and cross them. Finish by binding the edges of the bedspread.



SIMPLE CANDLEWICK DESIGN

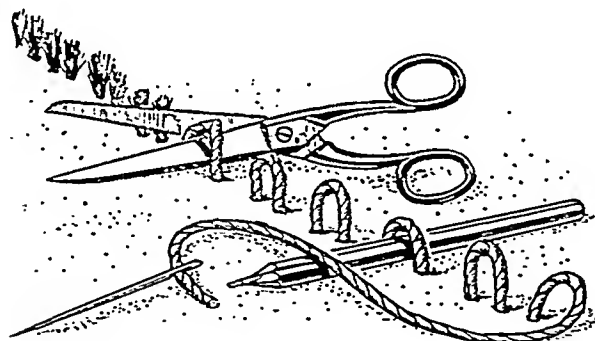


Fig. 196.

Candlewick Bedspreads: This is another quick and simple way of making a bedspread which is both pretty and cosy. Candlewick bedspreads may be worked in a variety of designs and colours. They look equally effective if worked in one colour, or in a mixture of colours, according to the decorative scheme of the room. The soft candlewick cotton with which the tufting is done, is purchased in one-ounce skeins, and is available in a selection which comprises every possible colour and shade which can be desired. Special needles may be obtained for working candlewick. A large darning needle can be used, although it is naturally easier to work with the correct candlewick needle. For the background fabric use calico, or sheeting (this is an excellent way of using an old sheet, providing the material

has not worn too thin); coarse linen or closely woven hessian may also be used for the foundation.

Transfers of suitable designs for candlewick may be purchased, and these should be ironed on to the right side of the foundation material. A double thread of candlewick cotton is used to work the lines of the design. The actual stitching is formed with a running stitch, but instead of pulling the thread flat against the material, small loops are left large enough to slide a pencil through, as shown in *Fig. 196*, and the loops are only formed on the right side of the material. When all the lines of the design have been worked, cut through the small loops with a pair of sharp scissors, to form the tufts (*Fig. 196*).

TOWELS

Bath Towels: A good bath towel should be soft to the touch and resilient to water, and the weave should be close and firm. Bath towels are usually made of turkish towelling, which is a cotton weave, very close and firm, with small loops which are securely fastened to the under weave. Good turkish towelling is thick and closely textured. Turkish towelling may be very soft or it may be rough, or very rough, according to the twist of the yarn. The harder types are not entirely suitable for household towels, and a good medium twist quality is best for most household purposes. Towelling is usually made of cotton and it is soft and cheap, but in some cases linen is used; while this stands up to hard wear very well, it is not as comfortable in use as a cotton towel. Bath towels are made in two or three different sizes; the very large type are usually referred to as bath sheets.

Roller Towels: A roller towel is very useful in the kitchen, cloakroom or bathroom, where there are young children in the family. It may be made from linen or from turkish towelling, and whichever is chosen, it should be of good quality, hard-wearing material. Roller towels may be purchased ready made, or turkish or huckaback towelling, bought by the yard in various widths, may be joined in suitable lengths to make roller towels.

Hand Towels: Face or hand towels are really smaller editions of a bath towel. Huckaback material is widely used, as also is turkish towelling. These materials may be purchased in many colours and designs. Turkish towelling, unlike huckaback, does not require ironing.

Guest Towels: It should be obvious that all materials used for making towels must be capable of being boiled as towels require frequent and regular washing. Wherever possible they should be dried out of doors and before hanging them up turkish towels especially should be given a hard shake, as this will help to bring up the pile. Towels of linen or huckaback may be ironed with a fairly hot iron, but it should not be necessary to iron a turkish towel, except perhaps just across the end borders. Guest towels are very small towels for the use of visitors to the house, who will not be staying overnight but may wish to wash their hands. Guest

towels are usually of coloured linen and are decorated, either with crochet edging or with an embroidered design. They should not be much larger than a traycloth in size as they are meant to be used once only before being laundered.

Repairs to Towels: Where thin worn places appear in a turkish towel, the towel may be given a new lease of life by working rows of machine stitching in a matching cotton, very close together, backwards and forwards across the thin part. Where the edges of a towel have frayed it is possible to reinforce them by binding with bias tape. Large towels may of course be cut down to make smaller ones. It is also often a useful measure to combine two towels which have worn thin to make one good towel. Choose two which are of similar size and type of material; place one over the other, and machine stitch lengthways down the towel from end to end, at a distance of about 2 in. to 3 in. between the rows of stitching.

EIDERDOWNS

An eiderdown does much to give a bed a luxurious appearance and adds great comfort to bedrooms in which one is used. Strictly speaking an eiderdown is of course a bed-covering which is filled with down from the eider-duck, but as the eider-duck comes from Iceland, and is becoming rare even there, real eiderdown is very expensive, so the term 'eiderdown' has now been taken into common usage to mean a bed-cover which is filled with either feathers or down from a mixture of birds. There are also available eiderdowns which are filled with various kinds of synthetic downs. Any of the fillings mentioned above are warm and light in weight, and the covering material can be of almost any type of fabric. Fashions vary considerably, and chintz, satin, taffeta, crêpe and even cotton may all be used. The colour of the material chosen should be one of the colours used in the decoration of the room. Many housewives like to repeat the curtain material on the eiderdown, and certainly this does seem to give a finished look to the room. But a contrasting colour can also be most attractive, and as with most bedding, it is really a matter of personal taste. When buying an eiderdown, the most important thing is to ensure that the filling has been equally distributed throughout the cover, and that the centre is as full as the sides. Care should be taken to ensure that all seams have been treated to make them featherproof.

Care of Eiderdowns: Always avoid putting a heavy coat or other article on an eiderdown, and try to make a habit of turning back the eiderdown before letting anyone sit on the bed, or the filling may become crushed down into lumps. From time to time eiderdowns should be given a brush with a stiff clothes-brush, so that dust cannot become lodged between the folds of the cover.

Whether or not an eiderdown can be washed is a point that may only be decided when the kind of covering material and the type of filling are known. If the covering material is washable and the filling is down, feathers or a mixture of the two, it should be quite safe to wash it. If the materials are not washable, eiderdowns

should be dry-cleaned. Choose a windy day to wash an eiderdown, because the more shaking it gets while drying the more successful the washing will be. Prepare a bath of warm soapy water. Squeeze and knead the eiderdown in the water, rinse it thoroughly in several changes of water, and finally pass it through a rubber-rollered wringer, or squeeze it out by hand. Never put an eiderdown through a heavy wringer, this might break the feathers. Hang the eiderdown out to dry, shaking it frequently while it is drying. After the eiderdown is dry it should be placed in front of a fire to air and shaken from time to time. It is suprising how much difference this will make; the feathers will separate and fluff out in the warmth. If the cover looks creased it can be smoothed over with a warm iron, but no weight should be put on the eiderdown.

Refilling an Eiderdown: When an eiderdown ages, the feathers or other filling work from the centre of the cover towards the sides and ends of the eiderdown. This may be remedied by using some feathers from an old cushion or pillow to replace the original filling in the centre. Place the new filling in a fabric bag—an old pillow-case or cushion cover will do—and unpick some of the stitching at the centre of the quilt. Tack the opening of the bag over the opening in the quilt and shake the filling in, then remove the bag. Tightly stitch the cover up again. If extra filling is inserted by hand, the slightest draught of air is enough to send feathers or down flying all over the place.

Recovering an Eiderdown: Eiderdowns which are covered in good quality materials normally give very many years of service before the covering becomes worn and shabby looking; however it sometimes becomes necessary to recover an eiderdown because of a change of colour scheme when a bedroom is redecorated. To have an eiderdown recovered by a store is an expensive item, as the work is long and requires great accuracy and patience. However, if a sewing machine is available, and the housewife is prepared to take time and care over the job, there is no reason why an eiderdown cannot be recovered successfully at home. The amount of material required will depend upon the size of the eiderdown. Measure the length of the eiderdown, then for a single-bed size cover, buy twice the length in 36-in. wide material, plus $1\frac{1}{2}$ yd. if the cover is to be finished with a frill or piping. A double-bed size eiderdown requires four times the length of the eiderdown, in 36-in. wide material, plus 2 yd. for the finishing frill. If 48-in. material is used this will cut to waste.

Covering a Double Eiderdown: Measure and cut the covering material into four lengths, each piece equal to the length of the eiderdown, and allow extra for turn-ins. Two lengths of the new material will be required to cover each side of the eiderdown. Use one length spread out flat for the centre of the eiderdown, and cut the second length into two lengthways. Join one of the narrow pieces to each side of the main piece. Press each piece well so that they lie quite flat (it may be necessary to nick the selvedge to obtain a perfectly flat surface). Measure the material for one side of the cover and run a tacking thread down the exact centre

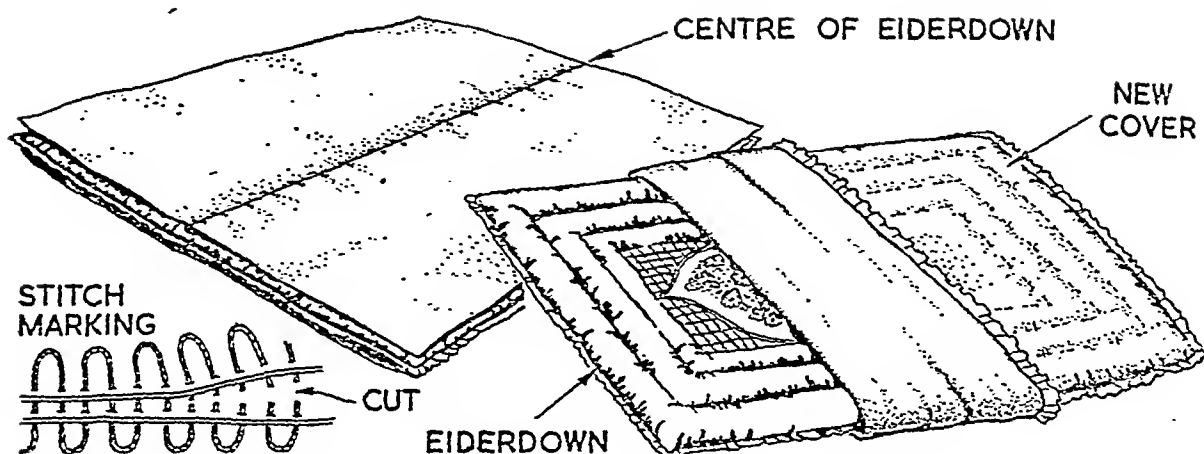


Fig. 197.

of the material, as is shown in *Fig. 197*. It is most important that this thread is positioned accurately. Pin the centre line of the new cover to the centre line of the old cover, placing pins at intervals down the entire length as shown in the illustration. Pin the new cover to the old, along the lines of stitching on the old cover, always working outwards from the centre, to the edge of the rows. When all of one side has been pinned, the lines of pins must be stitch marked, the method of doing this is shown in *Fig. 197*. Remove all the pins and cut the stitch marking. Run tacking threads along all the lines of the pattern. Repeat these instructions on the other side of the cover. When both sides of the new cover have been worked this far, take the two sides, and with the right sides of the material placed together, tack three of the sides of the cover together, leaving the fourth side open. If the edges of the new cover are to have a narrow frill, or are to be piped, the frilling or piping should be inserted between the two sides of the cover before tacking them together. Machine stitch along the three tacked sides, and with the cover still wrong side out, pin the end seam to the end seam of the old cover, placing the pins on the *right* side of the new cover. This may at first sound rather difficult, but study *Fig. 197*, and with a little care and patience, the job is easily done. Next pull the new cover over the old one, until the first line of stitching is reached. Pin the new cover to the old one, along the line of stitches on both sides of the eiderdown. This will take time as the lines must be pinned accurately, so that the fabric of the new cover is not stretched in the wrong direction. Continue in this way, pulling the new cover over the old, and pinning along the lines of stitching, until the last seam of the eiderdown is reached. Tack this last seam together by hand, turning in the edges at the same time. Then tack along all the *pinned* lines of the cover, taking the stitching right through the eiderdown and back, so that both sides of the eiderdown are tacked at the same time.

Remove all the pins, then machine stitch along the tacked lines. Remove the tacking threads and if necessary give the cover a smooth over with a warm iron, but put little weight on the iron.

If a narrow frill is to be used to trim the edges of the cover, this should be prepared and inserted before the edge seams of the cover are joined. A contrasting material is sometimes used for the cover frills; this is very effective when the cover is of a patterned material, and the frill in a plain colour to tone with the design.

TABLE LINEN

Traditionally, cloths and napkins for table use should be of damask or linen, but modern housewives have taken many other fabrics into use for table ware, with the result that not only are our tables now more informal, colourful and gay, but it is much easier to keep them so. Instead of using the damasks and linens which require careful washing and starching, we keep them for more formal occasions and use pretty ginghams, cottons and seersuckers for everyday use. These modern fabrics are easily washed, inexpensive to buy, and many of them do not even require ironing. Some housewives dispense with table-cloths and use table mats on a polished table. These may be of almost any fabric, lace or crochet for formal dinner-sets, bright cottons, linens, or felts for everyday. Dinner-cloths and napkins are usually purchased ready made. The less formal cloths used for breakfast and tea tables give plenty of scope to the needlewoman. These cloths can be of brightly patterned linen and cotton, or of pastel shades beautifully and colourfully embroidered. Napkins are generally made to match the cloth or table mats.

Fitted Gingham Cloth: Fitted table-cloths, tailored to fit exactly over a table-top, bring an attractive informality to a room. Gingham, spun rayon and linen are all suitable materials for this type of cloth. The illustration (*Fig. 198*) shows a 36-in. square table with a fitted cloth, but such a cloth may easily be made to fit a round or oblong table, or other table of any size or shape. To make the cloth illustrated 3 yd. of gingham 36 in. wide, a card of bias binding in a contrasting colour, 4½ yd. of narrow piping cord, a few scraps of coloured materials for the appliquéd design, and Sylko to match the gingham are required.

Cut the main material into a 36-in. square. Cut the remaining material into 12-in. wide strips. Join these strips with narrow french seams to make a continuous length. Cut motifs for the appliquéd corners from odd scraps of material. Prepare the piping by covering cord with bias binding and tack the piping to the edges of the 36-in. square. Join the short edges of the long, 12-in. wide strip, then gather along the top edge, so that it fits the edges of the square. Tack the frill over the piping and stitch along each edge of the square, securing the piping and frill together. Make a narrow hem along the lower edge of the frill.

Attach the appliquéd motifs to the corners, using button-hole stitch and matching cotton. When making a cloth to fit tables of other sizes, it is essential to cut

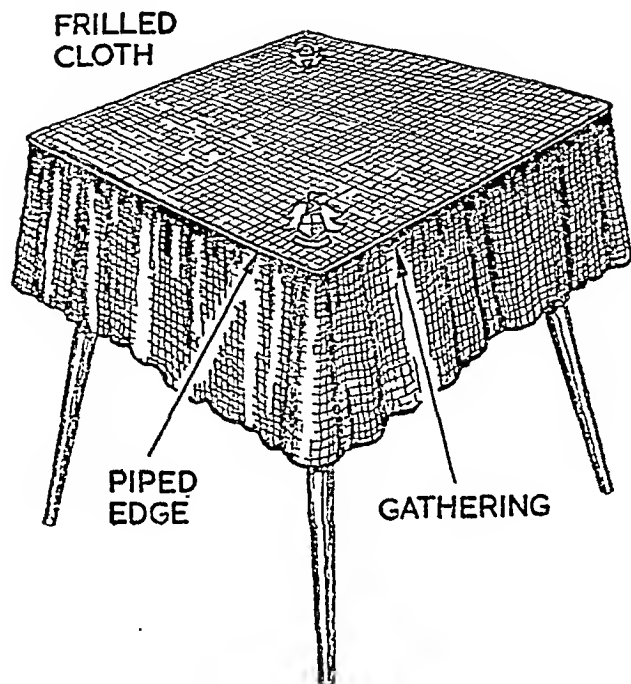


Fig. 198.

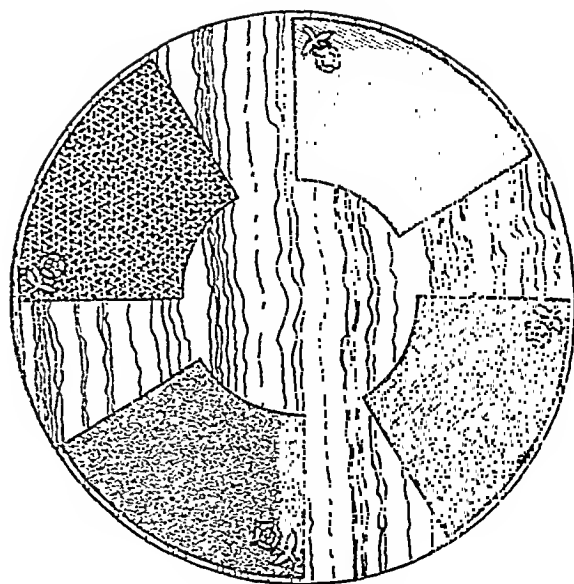
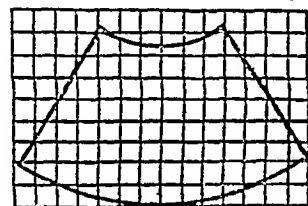
OUTLINE
OF MOTIF

DIAGRAM PATTERN

Fig. 199.

the main piece of material the exact size and shape of the table-top, plus $\frac{1}{2}$ in. for turnings, so that when the cloth is made up, the piping rests exactly on the edges of the table.

Mats for Use on a Round Table: Round tables are becoming very popular, and housewives are finding it difficult to set places with the usual-shaped table-mats; these are usually designed for use on a square or oblong table. The mats illustrated in Fig. 199, which are cut to follow the circle of the table, solve this problem. The mats are in plain coloured material, with black appliquéd designs, but patterned material could equally well be used, or each mat could be made in a different colour to give a rainbow effect to the set table. A good choice of material for this type of mat is felt, which does not fray, therefore requiring no treatment for the edges. For each mat a piece of felt 27 in. by 12 in. is required, plus a 5-in. square of black felt for the motifs, some black cotton and a skein of white stranded cotton.

To make the mats enlarge the pattern outline (Fig. 199) on stiff paper and cut to shape. Place the pattern on the felt and mark with chalk, then cut out. Cut out

TABLE LINEN

the black motifs and pin them to the mat. Oversew into position with matching cotton, then work the markings with running stitch, using white stranded cotton. Press the back of the work with a warm iron. If any other material is used it will be necessary to take up and stitch a narrow hem round the edges of the mats.

TABLE OF HOUSEHOLD LINEN REQUIREMENTS
FOR AVERAGE HOUSEHOLD

<i>Kitchen</i>	<i>Bedding</i>	<i>Bathroom</i>	<i>Table linen</i>
6 Tea-towels	1 Under Blanket	3 Face Towels (per person)	6 Large Cloths
3 Dish-cloths	2 Top Blankets	3 Bath Towels (per person)	6 Small Cloths
4 Table-cloths	1 Eiderdown		12 Napkins
3 Floor-cloths	3 prs. Sheets	3 Lavatory-cloths	
3 Towels	4 Pillow-slips	3 Basin-cloths	
3 Oven-cloths	1 Bedspread (per bed)		
6 Dusters			
2 Ironing Sheets			
4 Dust Sheets			

FLOOR COVERINGS

LINOLEUM, CARPETS AND RUGS

Preparation of floors.

LINOLEUM. *Types. Sheet Linoleum: Sizes—types of lino—tools for laying lino—securing linoleum to floors—estimating requirements—laying and trimming—dealing with awkward corners—repairs to linoleum—lino paints. Linoleum Tiles: Descriptions—method of laying—marking out—laying and edging—finishing.*

CARPETS. *Types of Carpets: Descriptions—needle-loom carpeting. Choosing Carpets: Colours and patterns. Stair Carpets: Preparation—laying—turning corners. Laying and Fitting Carpets: Measuring and estimating—preparation of floors—underlays—joining strips. Carpet Repairs: Edges—patches—dyeing. Cleaning Carpets: Beating—washing—removing stains from carpets.*

RUGS. *Method of rugmaking and materials. Prodded Rugs: Foundation—frame—designs—special tool—materials—method of making a prodded rug—an automatic prodder. Hooked Rugs: Foundation and pile material—use of gauge—latchet hook—thrums—patterns—formation of pile—finishing and backing. Plaited and Braided Rugs: 'Thrift' rugs—methods of making and finishing.*

THERE are several methods of decorating and colouring floors, and handyman jobs of this type can do a lot to improve the comfort and appearance of a home. The repair of floors has been dealt with fully in the section on 'Interior House Repairs', which describes various types of repairs to solid and suspended floors, and also includes a description of the preparation of floors before staining or painting them. The actual painting and staining of floors is also dealt with in the section on 'Interior Decorating'. The following information deals with methods of covering floors rather than decorating them, although of course the colours of floor coverings should be in keeping with the general decorative scheme in the room in which the floor is. It has been described how floors may be protected from wear and decorated by staining them or staining parts of them, and by painting floor-boards with paint of a special flooring quality or with linoleum paint. Information given in the following section deals with floor covering and these are divided under three main headings which are linoleum, rugs and carpets.

Before laying linoleum or carpets it is necessary to prepare the floor by removing all the old tacks, driving in any protruding nail-heads with a hammer and nail-punch, filling in gaps in floor-boards and repairing any defects in the floors. The work of preparation should be done thoroughly as this may affect the life of the covering material; for instance, if some of the floor-boards have raised edges which are not eased down with a plane or hook scraper, undue wear on these parts will be placed on the covering of linoleum or carpet. The same careful preparation should be given to the floor before laying any kind of covering material. No

special preparation is needed before laying rugs, which are usually used over coverings of linoleum. On partly covered stained or painted floors it will obviously be necessary to tackle the job of preparation just as thoroughly as though the floor were being completely covered.

LINOLEUM

Linoleum floor coverings may be broadly divided under two main headings, the work consisting of covering—or partly covering—the floor with sheets of linoleum or covering the surface with linoleum tiles.

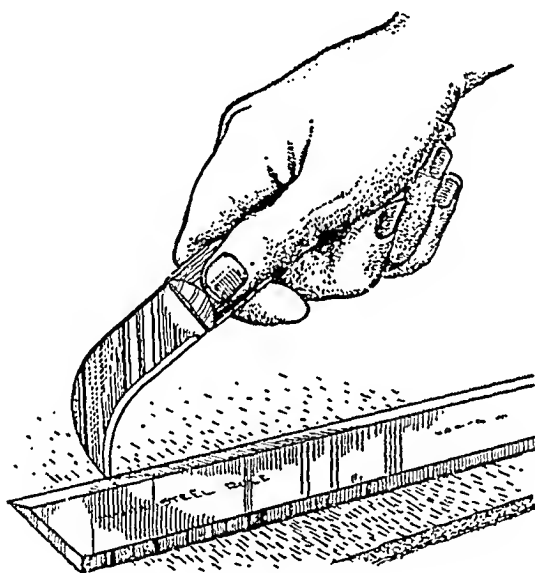


Fig. 200.

Sheet Linoleum: Sheet linoleum is sold by the roll in standard widths of 6 ft., and when estimating and purchasing sheet linoleum it should be remembered that a 'yard' from the roll consists of 2 sq. yds.—a yard of linoleum from the roll being 3 ft. by 6 ft.—the standard width. Linoleum may also be obtained in narrow widths—usually 24 in. or 18 in.—for covering stairs, passage-ways and landings. The narrow linoleum widths may also be used for covering floor surrounds at the edges, where the centre is to be covered with a carpet smaller than the area of the floor of the room.

There are two main types of linoleum: the best quality is known as 'inlaid' and this is sometimes referred to as 'cork' linoleum. Inlaid linoleum is plain or patterned with colours that go right through the material to the backing of hessian. It

is extremely hard-wearing and although the surface may become worn with the passage of time, the inlaid colours or pattern show very little signs of wear. The other type of linoleum is 'printed' linoleum and this may also be referred to as 'painted' linoleum: it may also be sold under its rather old-fashioned name 'oil-cloth'. Printed linoleum has a compressed felt backing and the colours or patterns are merely printed on the surface and do not go right through. Inlaid linoleums are thicker than printed linoleums. Printed lino is really only suitable for the floors of rooms where durability is not of first importance, but for the floors of rooms which have to stand up to considerable wear, it is advisable to invest in the more expensive inlaid linoleum or linoleum tiles (linoleum tiles are dealt with separately below). Because the price of inlaid linoleum is more than that of printed linoleum it does not necessarily mean that the better quality is more expensive, as, of course, a good inlaid linoleum has a very much longer life than printed lino. The tools required for lino-laying are few and simple. The main tool is a lino-knife, with a hook-shaped blade, which is illustrated in *Fig. 200*. A straight-edge will be required and this may be a thin, straight piece of wood from the workshop, or straight-edges of 3-ft. or 6-ft. lengths, with metal slips inserted in one edge, may be purchased from hardware stores. A light hammer is also required and a piece of chalk. It is essential when using the lino-knife to keep it well sharpened and this may be done with an oilstone of the type described in 'Handyman's Basic Tool Outfit'.

Linoleum may be secured to floors in one of two ways; by nailing it to the floor, or by securing it with an adhesive, and a special linoleum adhesive is made for this purpose. Obviously when securing linoleum to a solid floor, it will be necessary to use an adhesive. If the floor is of wood, the covering may be affixed with lino-adhesive or with nails. The nails are not ordinary nails and the handyman who wishes to become expert in this particular branch of home maintenance should make a point of always using the correct fittings, which are lino 'sprigs'. These are exactly the same shape and size as glazier's sprigs which have been previously described. A lino-sprig, which is wedge-shaped, has no head and has a square body which tapers towards the point.

The preparation of the floor before laying linoleum is the same as previously described and mentioned above, and to ensure long life it is essential that the preparation is done thoroughly. If a good job is made of the preparation of the floor surface and this is in a reasonably good condition, an underlay for linoleum is not essential, although of course the use of an underlay will prolong the life of the linoleum, in addition to helping to draught-proof the floor. Use of an underlay also makes the linoleum quieter to walk on. A thin felt underlay may be used. This is obtainable in shops where the linoleum is purchased. As an alternative, the underlay may consist of several thicknesses of old newspapers.

Before purchasing linoleum it is necessary to estimate the amount required and to do this a scale plan of the room should be drawn on paper. Linoleum is used

to its best advantage when it is laid across the floor-boards and at right angles to them, as illustrated in the drawing in *Fig. 201*, which shows a scale drawing of an average room. When estimating requirements the area across the floor-boards should be divided into standard linoleum widths of 6 ft., and a separate allowance should be made for any odd areas, such as window spaces. With the room plan marked in standard widths, the amount of linoleum may be ascertained by totaling the lengths of the standard width, as shown on the plan, and the amount of linoleum purchased should be to the nearest $\frac{1}{2}$ yd. *above* the total estimated length.

Sheet linoleum from the roll does not require any special preparation, except that in cold weather it will be found more easy to handle if the roll is stored for a few days in a warm room, this will also prevent the linoleum cracking when it is laid.

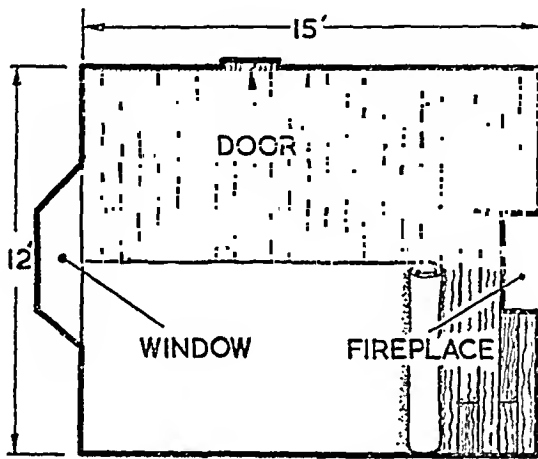


Fig. 201.

The linoleum should be laid in the same way as shown on the estimating plan. It will be found best to commence in a right-angled corner and the end of the roll should be fitted into the corner with the edge of the linoleum touching the skirting-board. The roll should be unrolled as far as possible. The end of the linoleum should be checked for squareness and it should fit neatly into the angle formed by the joining skirting-boards. Should the linoleum require trimming, if there are any wedge-shaped or irregular gaps, this is best done by marking the material with a pair of dividers as illustrated in *Fig. 202*, with one point of the dividers running along the skirting-board, the other marking the end of the linoleum. If trimming is necessary this should be done with a straight-edge and linoleum knife, the point of which *must* be sharp. In use the blade of the knife should be perfectly upright and the edge of the knife is guided by the straight-edge as shown in the illustration (*Fig. 200*). The method of cutting should be to make

a series of cuts exerting light pressure on the knife, rather than attempting to cut right through the linoleum at one go. This job is sometimes done by inexperienced amateurs by scoring the face of the linoleum and bending it back to crack it along the scored line. This method, however, is incorrect and may result in some wastage. It is best to continue making light, short cuts with the lino-knife until the material is cut cleanly through. With the end trimmed, it should be placed into the corner against which it was measured, and the length may then be cut to fit into the opposite corner.

To do this neatly, a light pencil mark should be made on the skirting at one edge of the linoleum and on the floor, at the other edge, at a distance of about 18 in. to 2 ft. from the skirting-board against which the cut end will be placed. The measure marks should also be made on the edge of the linoleum at the same

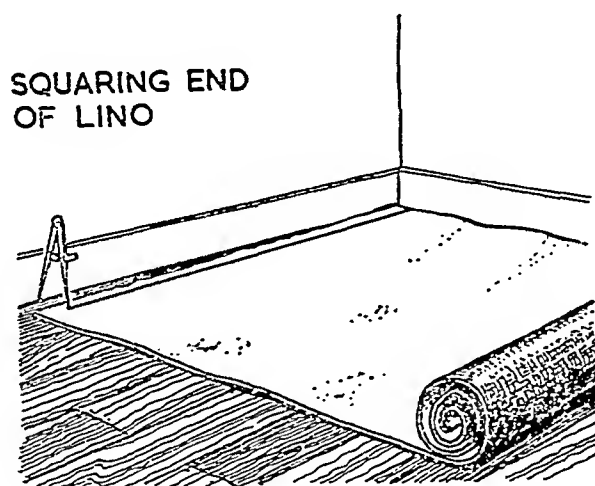


Fig. 202.

time as marking them on the skirting and the floor. With this done, the roll is eased away from the corner for cutting, and the distance of the measured mark from the skirting against which the lino is to be laid should be measured and marked on the edges of the linoleum from the pencil marks made when marking the wall. The measurements, of course, should be checked with a rule against the marks on skirting and floor to ensure accuracy. With the final marks made, the lino is cut the same way as described previously, and is then laid in position, when no further trimming should be necessary.

The remainder of the floor is covered in the same way, working along the length of the floor-boards a piece at a time. Any odd areas such as window spaces or floor spaces in recesses at the sides of fireplaces are dealt with according to their position. For instance, in the plan in *Fig. 201* it will be seen that the fireplace comes partly into a standard width and the end of the roll should be trimmed to

fit round the hearth and the walls at the side of the fireplace as it is laid, whereas the window piece in the illustration (*Fig. 201*) can be laid as a separate piece.

The inexpert lino-layer may find it difficult to mark the linoleum for cutting round awkward corners such as fireplaces or in doorways. The best way to over-

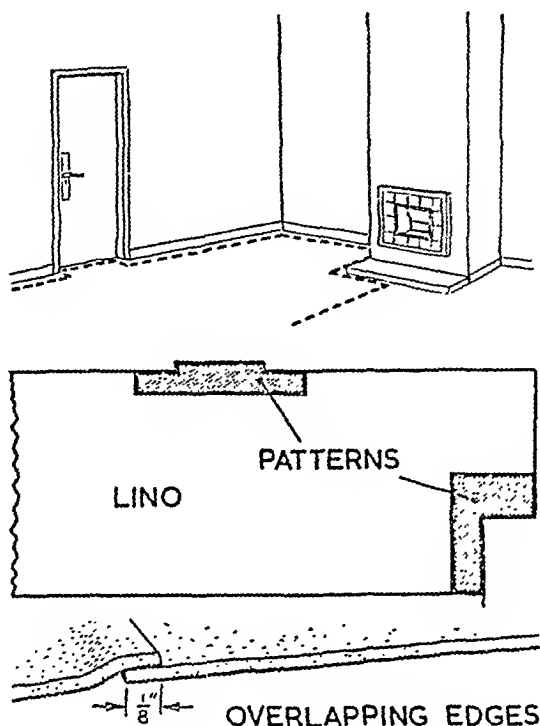


Fig. 203.

come this is to make a thin cardboard or strong paper pattern to fit the angle shapes as illustrated in *Fig. 203*. The pattern is then cut to shape with a pair of scissors and is placed accurately in position on the linoleum before marking the cutting lines with chalk—ordinary school chalk may be used—the side of the chalk should be rubbed on the edge of the paper pattern on the linoleum. With the pattern removed, the cutting line will be clearly outlined. When shaping linoleum in this way, the straight-edge should be placed so that the knife is on the waste side of the trimming so that if the knife slips away from the straight-edge the piece of linoleum will not be spoilt. The knife should be used as much as possible for trimming, but if there are any small, awkward strips which are difficult to trim with a knife, a strong pair of scissors may be used.

In doorways, the linoleum should be trimmed so that it extends under the door to the inside edges of the door stops, as illustrated in *Fig. 203*.

At this stage of progress, after all the pieces have been trimmed and laid, none of the linoleum should be fastened down. Most types of linoleum either stretch or shrink slightly after they have been laid and none of the pieces should be fixed down until two or three weeks after cutting and laying them. If the lino is fixed down immediately, the natural shrinkage or swelling may cause it to cockle. To allow for the swelling when the lino is laid, the edges should be slightly overlapped—about $\frac{1}{8}$ in. is sufficient—as illustrated in *Fig. 203*. Before fixing the linoleum to the floor surface, the position of the lapping edges should be reversed. Trimming is then done with the straight-edge held in line with the overlapping edge of the pieces of linoleum and the knife is carefully worked along to cut through the underlapping piece. When the lino has settled down, it may be secured with adhesive or sprigs. Adhesive is used for solid floors. Most coverings

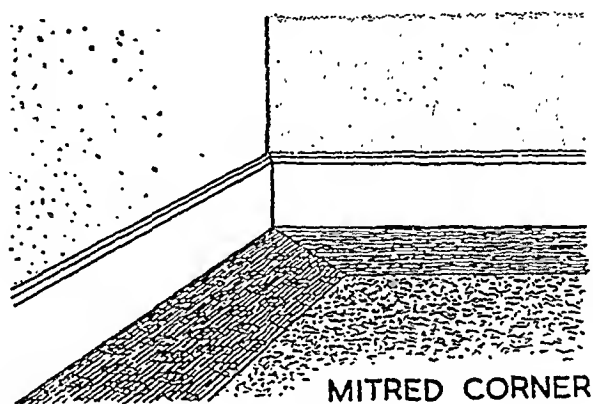


Fig. 204.

on wooden floors are fixed with sprigs. The sprigs should be driven in until the heads shrink just below the surface. It is not necessary to pepper the edges of the linoleum with sprigs and only sufficient should be used to hold the linoleum on place and fix the edges down. The use of sprigs enables the linoleum to be lifted easily at a later date without tearing large holes in the edges, which would happen if large-headed tacks were used.

If narrow strips of 18 in. width or 24 in. width linoleum is used to border a floor the corners should be neatly mitred as illustrated in *Fig. 204*.

All the odd scraps of linoleum should be carefully saved, rolled up tight and placed in the workshop. These will be found useful should it be necessary to repair worn patches of the linoleum at some future date.

Repairs to patterned lino may be done to make them practically invisible. If lino becomes worn in one place, a piece of linoleum of the same pattern should be cut to outline a section of the pattern motifs, slightly larger than the worn area.

This is then placed over the worn patch and one or two sprigs driven partly in through the centre to hold the new and old lino together. With this done the outline of the pattern motif should be cut through with a lino-knife, with the point of the blade very well sharpened. After cutting through, the section of old lino should be cleanly removed, any old sprigs lifted with a pair of pincers, the new patch inserted and sprigged down.

Another method of repairing linoleum which may be easily done if pieces of the linoleum are not available for repair, is done by painting over the patch with linoleum paint. A worn patch in a doorway is painted over with linoleum paint, covering a section of the lino in the shape of a door-mat. This is a useful method, particularly for renewing worn patches in doorways and in front of sinks, wash-basins and stoves, etc.

Linoleum Tiles: The following instructions for laying linoleum tiles may also be used for laying plastic or rubber floor-tiles, as the method of preparation and application is the same. Floor-tiles are inexpensive in relation to their long life and the low cost of their maintenance. They are easy to lay and may be obtained in a very wide range of colours and patterns. Although they may be laid successfully in every room in the house, floor-tiles are usually laid on floors of bathrooms, kitchens, halls and passages. Floor-tiles may be divided into two main groups, linoleum floor-tiles and composition tiles, which may be of plastic or rubber. Composition tiles last longer than linoleum tiles and they are slightly more expensive. Linoleum from which lino tiles are made is of inlaid quality, which simply means that the pattern colours go right through to the back of the material and this increases their length of wear. The sizes of tiles may vary between different manufacturers. Most kinds of linoleum tiles are 9 in. square—composition tiles are usually 12 in. square. Both linoleum and composition tiles are secured to floor surfaces with an adhesive and the type of adhesive may vary according to the tile material, also to the type of floor—concrete, stone or wood. It may be estimated that a gallon of adhesive is sufficient for laying about 10 sq. yd. of tiles. After preparing the floor the number of tiles required may be estimated by making a scale drawing of the floor surface, as described above. The patterns and colourings available in either type of tile, composition or linoleum, permit the handyman to design a good variety of patterns and the pattern colourings are best marked out on the scale plan of the floor, to arrive at the number of tiles of each colouring required. Some pattern suggestions are given in *Fig. 205*.

The method of laying the tiles, whether composition or linoleum, and whatever their size, is the same. After the floor has been prepared it should be brushed to remove all traces of dust. If the floor is greasy it should be well scrubbed, using soap and water only—soda should *not* be used to clean floors in preparation for laying tiles. To commence, the floor is quartered, and this is done with a snap line. The opposite sides of the room should be measured and a small nail partly driven in by the half-way mark of each of the four walls of the room. A length

FLOOR COVERINGS: LINOLEUM, CARPETS AND RUGS

of twine should be attached to one of the nails, the twine rubbed with white school chalk, or chalk of a colour which will show up against the floor surface. The twine should then be tightly stretched from nail to nail on opposite walls and the end secured by winding it round the head of the nail. With this done, go to the centre of the line, pluck the line from the floor, release it smartly to impart a clean and straight chalked line bisecting the floor. The floor is then squared in exactly the same way, using a freshly chalked line at right-angles to the first one. With this done, the nails should be removed and the job started.

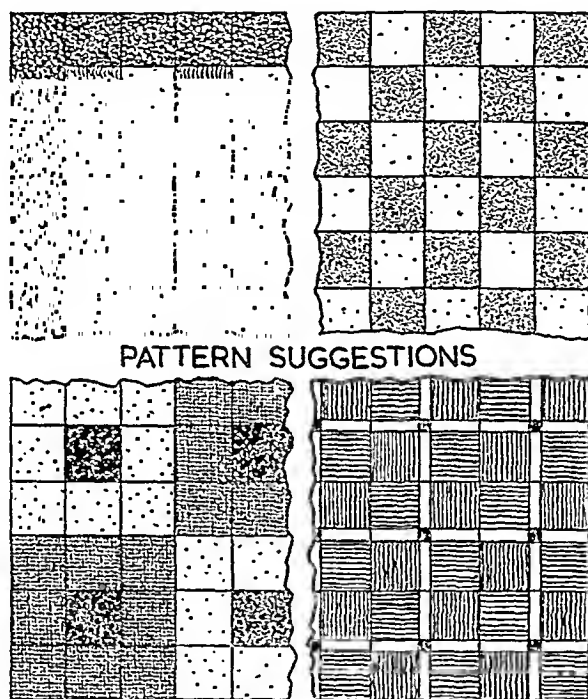


Fig. 205.

The first tile laid is placed in the centre of the room with two right-angled edges exactly meeting the chalk lines where they cross in the middle of the room, as illustrated in *Fig. 206*. With the first tile laid, a complete row of tiles is put down, working outwards from the first tile laid so that the edges of the other tiles in the row are exactly on the chalked guide line. After the first row of tiles has been laid, leaving any odd space between the last tile at each end of the row and the skirting, a second row of tiles is laid at right-angles to the first one, as illustrated in *Fig. 206*, also with their edges exactly meeting the chalked guide line.

The tiles are laid on the adhesive, which is spread on the prepared floor surface; the adhesive is applied with a wide, clean paint-brush, and is then spread with

a special tool which is obtainable from the supplier of the tiles and the tile cement. The tool, which is known as a 'spreader', is illustrated in *Fig. 206*. It will be seen from the illustration that the spreader has a sawtooth edge. In use the spreader is scraped over the adhesive, brushed on the floor, so that the points of the teeth rest on the floor surface. Use of a spreader in this way ensures that the correct amount and thickness of adhesive is applied for every tile. It is not necessary to spread large quantities of adhesive; only sufficient for the tile being laid needs to be applied at one time, but it is important to ensure that sufficient adhesive is applied

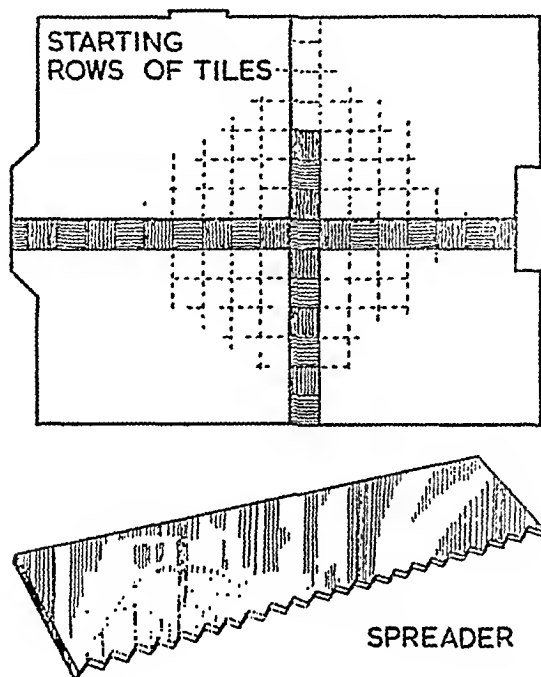


Fig. 206.

for each tile that is laid and special care should be taken to ensure that all the edges of each tile do meet an adhesive-coated section of the floor. As each floor-tile is placed in position, with edges meeting, it is patted firmly in place on the adhesive with the palm of the hand, and that is all that is necessary to settle the tiles in place.

After laying the first two crossing rows any one of the floor sections as divided by the crossing rows may be laid, provided that the tiles are laid from the centre of the room *outwards* towards the skirting-board. If the first two rows are laid correctly, it should not be necessary to trim any of the tiles until the skirting-board is reached.

Fill all the sections of the floor, patting each tile firmly into place. If any adhesive

becomes splashed on the face of the tiles it should be wiped off immediately with a damp rag.

If a complicated, varied-coloured pattern is being laid, it will be found advisable to roughly mark the positions of the tiles before each section is filled in, using chalk to define the colour position on the floor surface.

The last part of the job of laying tiles consists of neatening the edges, which is the space between the last tiles laid and the skirting-boards. The floor may have an all-over pattern meeting the skirting-board, or the edge of the floor may be bordered by cutting tiles as illustrated in *Fig. 205*. If a border is laid, care should be taken when laying the last tiles at the edge of the floor-covering to ensure that sufficient space is left for the border—it may be necessary to trim the tiles at some of the walls. To fill the remaining border area, before laying the adhesive, the tile should be placed in position, as shown in *Fig. 207*, with one edge of the tile placed

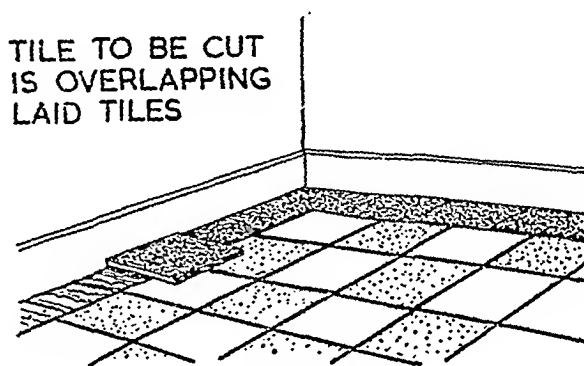


Fig. 207.

squarely against the skirting-board at the edge of the floor, and with the surplus of the tile overlapping the edge tiles previously laid. With this done the face of the tiles should be marked with a pencil at the exact point of overlapping. The tile is then removed, the marks joined with pencil and straight-edge and the tile neatly cut through at the dividing line with a very sharp lino-knife. The tiles are then laid in the usual way by spreading adhesive on the floor and patting them firmly in place.

The tiled floor may be walked on immediately it is laid, and after laying the tiles it is advisable to wash the floor surface to remove any small splashes of adhesive. This job is best done with warm water containing a very small amount of detergent powder, but no soda should be used for the first cleaning of the tiles, or afterwards, as soda has harmful effects on the composition of some tiles, also on the adhesive. Any special cleaning requirements for different makes of tiles are included by the manufacturers in the packets of tiles when they are purchased.

It should be appreciated when covering floors with linoleum or plastic tiles, that the covering is a permanent one and obviously sensible care should be taken

to carry out any necessary repairs or alterations to under-floor services such as gas, water or electricity supplies before the tiles are laid, as it will be found almost impossible to remove floor-boards, without damaging the tiles, once they have been secured in position.

CARPETS

Types of Carpets: Although the initial outlay required to buy a good carpet is considerable the additional comfort and warmth, plus the very long life of a carpet, makes the cost of covering a floor with carpet comparable with that of other floor-covering materials. As carpet-buying involves the spending of a comparatively large sum of money and as the covering must last for many years, careful thought should be given to the matter before actually purchasing and laying a carpet.

There are several types of carpets, the very best quality being hand-made; these are usually very expensive and most householders may have to choose one of the machine-made types. Axminster and Wilton carpets, both of which are machine-made in England, are perhaps the best known of the cheaper carpets. These are both made with a cut pile from wool or yarn. Wilton carpets are more closely woven than the Axminster carpets but both are very long-wearing and well worth their original cost. Among the many continental types of machine-made carpets, the best known is probably the Brussels carpet. This has a rather coarser texture than that of the English carpets and is made from worsted yarn with a pile which resembles a looped rib. All the carpets mentioned above are obtainable in many plain colours, also in a wide variety of patterns.

The Kidderminster carpet, which is also English machine-made, is considerably less expensive than the other previously mentioned carpets and is woven with a flat surface without pile. It has several advantages over the more expensive carpets in that it is light in weight, hard-wearing and, of course, less expensive to buy.

There are now available several brands of needle-loom carpeting. This form of carpeting is inexpensive and, although it has not quite the same wearing quality of the better carpets, will last a considerable time. Needle-loom carpeting is attractive to look at, warm and comfortable in use, and is very easy to lay. The various manufacturers produce several qualities of needle-loom carpeting suitable for the different rooms of the house, and these are produced in several widths and in a good variety of colours and designs. Needle-loom carpeting is becoming extremely popular as its flat surface seems to fit into contemporary decorating schemes more readily than do much of the better quality carpets. It is made on a hessian back and the surface is a mixture of wool, hair and rayon fibres. These fibres are needled into the hessian backing and the backing is then coated with a rubber-like solution which serves two purposes—it binds together the surface and hessian and also prevents the carpet being worn by rubbing against the floor-

the felt or pads and to allow an extra 12 in. or more at top and bottom. This will enable the stair carpet to be moved up and down at intervals and prevent the wear always coming in the same places. When new stair carpet is being used it should be moved about once every three months for the first year, after that once every six months will be sufficient. Any new carpet fluffs quite a lot, but this is harmless and merely means that the pile has not had time to settle down. It is as well not to use vacuum cleaners or brushes too vigorously on a carpet for the first few months after laying to allow the pile time to settle.

Stray loose ends which may be found in new carpets should never be pulled or picked out; cut them with scissors to match the length of the remainder of the pile or, if the carpet is of the looped pile variety, gently pull neighbouring loops until the protruding end is drawn back into place. The surplus carpet at each end of the stairs can either be laid to run under the landing floor covering, or the surplus can be folded back and under at top and bottom of the stairs—this will probably be the easiest way.

The pile of a stair carpet should, in most cases, flow from the top to the bottom of the staircase; it is therefore necessary to commence from the top of the stairs and work down when laying the carpet. Rods or clips can be used to hold the carpet in place on each stair.

The carpet should be laid tightly and firmly over each stair and a rod or clips inserted to hold it. If there is a bend in a stairway containing triangular winding stairs there will be found to be excess carpet on the inside of each step on the bend. This should be folded carefully underneath the carpet on the top of each step and tacked firmly back; the excess carpet should never be cut, as this will make it impossible to move the carpet up or down or to use it on any other stairs.

Laying and Fitting Carpets: Before commencing to lay any carpeting an accurate drawing of the floor should be made with the fireplace, recesses, and doors carefully marked; the plan can then be studied so that the handyman knows exactly the amount of floor space which is to be covered and can plan the space of carpeting in the most economical way and cut down wastage to a minimum. It is essential that carpeting is laid absolutely flat and even as wrinkles will very quickly wear and shorten the life of the covering.

As when laying stair carpet, the floor surface must be in as good condition as it is possible for the handyman to make it. There are almost bound to be nails and tacks protruding from the floor-boards and these should, where possible, be removed. If this is not possible, they should be punched below the surface of the boarding. Repairs to loose and worn boards and gaps in the floor should be dealt with as described in the section 'Interior House Repairs'.

An underlay of thick felt base may be used to lengthen the life of any carpeting and also adds warmth and comfort. This felt is inexpensive and saves a considerable amount of wear on the carpet. An alternative to a carpet felt is to use layers of newspaper arranged over the floor-boards. The paper should be spread to

a depth of about $\frac{1}{2}$ in. and it must be laid quite flat so as not to wrinkle the carpet. The carpet square—or if strips of carpet are being used, the joined strips—should be placed on the underlay and left for several days so that the felt and carpet can both be allowed to stretch. Carpet squares will probably not require any further treatment, but where strips are used the cut edges will probably require binding, except in the case of needle-loom carpeting, which is manufactured in such a way that the edges do not fray. After about a week the carpet should be removed and the felt, if it has stretched, cut to fit exactly. It may then be tacked to the floor and the carpet placed back on top of it.

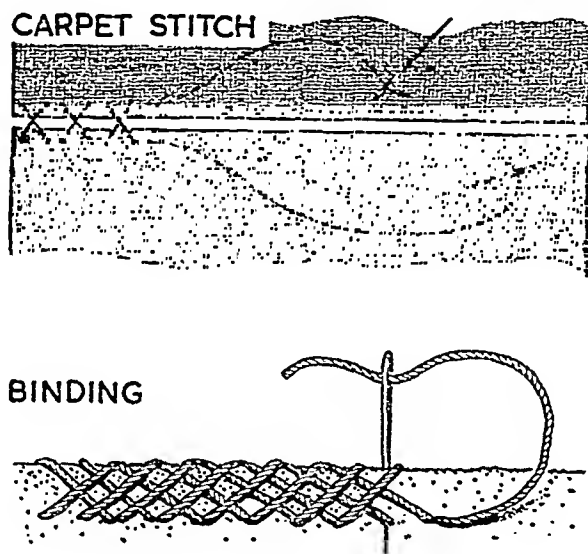


Fig. 208.

If strips of carpeting are being used the pieces must be joined together by stitching. The method employed to do this is shown in *Fig. 208*. Take a long length of carpet thread and thread it through *two* carpet needles, one each end of the length. Place the two strips of carpet edge to edge with the backing outwards and, using both needles, stitch as shown in the illustration (*Fig. 208*). If needle-loom carpeting is being used the manufacturer will supply details for joining with the carpeting when it is purchased, but as a general rule the edges of needle-loom carpeting are joined together by sticking lengths of hessian, or binding, on the underside of the carpet with a special rubber adhesive to cover the join.

In the case of a fitted carpet, where it may be necessary to cut carpeting to fit round a fireplace or to fit into a recess, it will be necessary to bind the edges of the carpeting. The method used for this is shown in *Fig. 208*.

Where a carpet square is used and the surrounding edges of the floor are left uncovered it adds to the life of the carpet if it is turned at intervals so that wear is even all over the carpet.

Carpet Repairs: If a carpet is widely used, the wear will be general over the whole surface, but occasionally it may be necessary to make some small repairs. The edges of a carpet sometimes become frayed towards the end of its life, and this deterioration may be halted by binding the edges with carpet braid. This is suitable for use with Brussels, Wilton or Axminster carpets. There are other types of carpet which will not lend themselves to bound edges and the frayed part of these should be repaired by working a blanket stitch through the edges with a carpet needle and carpet thread.

The stitches must be worked very close together and well into the edges of the material. There are also available carpet adhesives which can be painted on to the edges of carpets and will strengthen and prevent fraying of the edges. Small holes sometimes occur in carpets, generally caused by hot cigarette ash or sparks from a fire. These may generally be repaired by matching the threads in the pile and working in new tufts of wool to fill the small gaps. After the gap has been filled in, the new pile must be carefully trimmed so that it is level with the old pile. Should the back of the carpet also be damaged, a piece of hessian or rug canvas can be quite easily stitched under the hole and the new wool worked from the new backing to fill the gap in the surface of the carpet. It sometimes happens that a cinder or spark flying from a fire is quickly removed, having only scorched the surface of the carpet; this can be treated by very carefully shaving off the scorched tips of the pile and then sponging the damaged area with a little detergent in warm water.

An old carpet that has become rather colourless can be revived by re-dyeing with a good carpet dye. There are available several brands of carpet dyes in many colours. This treatment is very successful but as boiling water must be used it very often results in the carpet shrinking slightly. While this will probably not matter in the case of a carpet square it can be disastrous for a fitted carpet unless plans are made to refit the carpet after dyeing. Before commencing to dye a carpet it should be thoroughly cleaned. When mixing the dye the manufacturers' instructions should be followed exactly. These have been worked out by experts to give the most satisfactory result with that particular dye. If the exact colour required is not obtainable dyes can be mixed, but where more than one dye is used they should all be of the same brand. It is very risky to mix dyes of two different brands together.

Cleaning Carpets: The use of a vacuum sweeper or a stiff brush are the best methods of cleaning a carpet. It should not be placed on a line or against a wall and beaten as this imposes undue strain on the fabric and is very apt to cause frayed edges. If a carpet has become excessively dusty, it should be placed face upwards on a dry lawn and lightly beaten. Generally it is a mistake to use soap

or soap powder to clean a carpet as these may contain soda or ammonia which may cause the dyes to run, or which can damage the wool. There are available several brands of carpet cleanser which can safely be used according to the manufacturers' instructions. In most cases one of the modern soapless detergents used in warm water is suitable for cleaning. When stains do occur it is essential to identify the stain so that the right treatment may be given. Where liquids or grease are spilt on a carpet quick action can save a bad stain. Use clean cotton wool or blotting paper to soak up any liquid stain and carefully remove as much as possible of the greasy substance with the back of a knife. Individual stains should be dealt with as follows.

Grease, Paint, Oil and Tar: First get as much as possible of the substance off the carpet by carefully blotting and scraping, then cover the spot with a piece of clean blotting paper and hold a warm iron over it. In this way most of the substance should be removed. To complete the cleaning, a dry cleaner will be required. There are several of them available, but before purchasing make certain that the particular brand can be used on woollen fabric. Never pour the cleaner directly on to the carpet but apply it with a soft cloth. Starting from the outside of the stain, work towards the middle, rubbing gently with a circular movement. Re-charge the cloth with the cleanser and blot between each application. If the carpet is very badly stained it will probably help to place some absorbent material under it so that some of the substance is soaked up through the backing. After the dry cleaner has been applied, mix a little detergent with lukewarm water and apply to the stain with a soft cloth, or sponge, blotting well between each application. This treatment should be continued until the stain is removed, finishing by wiping with lukewarm water.

Tea, Milk and Coffee, etc.: Most of these stains can be removed in the same way as was described for oil, but in this case the detergent and lukewarm water should be used first, followed by an application of the dry cleaner. This method can also be used to remove soot stains. If the fall of soot is considerable it should be gently vacuumed from the surface of the carpet and the carpet then cleaned as described.

Ink, Wine and Beer: Wine and beer stains will, in most cases, be removable by an application of detergent and warm water. Inks will probably prove a little more difficult. Ordinary writing ink can often be removed by sponging with a little milk, followed by detergent and warm water. If this fails a solution of oxalic acid can be applied, but this should be well rinsed off. Copying ink or red ink will probably yield to a little methylated spirit or an application of white vinegar; either of these should be very quickly blotted and followed by an application of detergent and warm water.

Resisting Moths: Most of the new carpets being manufactured are treated to prevent damage by the common clothes moth and also by carpet beetles. If, however, this has not been done, or if it is felt that some extra protection would be a wise

move, the use of newspaper spread under the carpet will do much to discourage moths. The felt underlay can also be sprinkled with moth-proof crystals of paradichlore benzene or it can be sprayed with a moth-proofing liquid.

RUGS

A home without rugs would be a cheerless place and rugs do as much as any other part of the furnishings to add comfort to every room of a house. Rugs are quite easy to make and there are literally dozens of ways of making them. Rugs of all sizes, shapes, patterns and colours may be hooked, prodded, tufted, plaited, braided, stitched, crocheted, knitted, looped or woven from an almost endless variety of materials such as wool, candlewick, flannel, flannelette, stockinette, felt and many other fabrics, also raffia rushes, cord and string. The tools required for rug-making consist of the main requirements which are a sharp pair of scissors, a sharp handicraft knife—in preference to a razor blade—needles and thread. The main tools of the rug-maker's outfit will require supplementing by the particular rugging tools used for the type of rug being made—such as latchet hooks and prodders, etc. These tools may be obtained for use as hand tools and there are obtainable a good selection of machine tools which make rug-making a very speedy pastime. However, speed is not always essential for doing pleasant jobs and quite a lot of handymen prefer making rugs by hand. This part of this section on 'Floor Coverings' describes some of the different ways of making rugs and each method of rug-making includes a description of any special rug-making tools required for the particular types of rugs.

Prodded Rugs: The prodding method of making rugs is a very popular one and it is extremely easy to do. Prodded rugs are made with a prodder which simply consists of a tubular tool with one end pointed—the other end is fitted into a wooden handle that fits easily into the palm of the hand. A prodder is illustrated in *Fig. 209*. Prodded rugs, like most home-made rugs, are made on a foundation material. In the case of prodded rugs this may be sacking or finely woven hessian. Old sacks may be used if the pieces are large enough—the sacking should be washed first. Prodded rugs are best made on a frame and the frame can easily be made by the handyman. A suitable frame is illustrated in *Fig. 209*, which simply consists of four sides joined together and supported by four legs. The foundation material is placed over the frame and is secured firmly in position by staples which can be made from 16-SWG. galvanized wire. The wire is simply cut to length, the ends rounded over with a file and the staple pieces bent to the shape illustrated in *Fig. 209*.

The first part of the job of making prodded rugs consists of marking the design on the foundation. The design is marked on the *back* of the foundation material, which is placed with the design side uppermost on the frame. It should be appreciated that it is not necessary to make the frame the full size of the rug as the

FLOOR COVERINGS: LINOLEUM, CARPETS AND RUGS

foundation may be moved on the frame as each section of the rug is completed. The best method of designing any type of rug is to draw the design or motifs with coloured pencils or crayon on graph-paper. The use of graph-paper enables the rug-maker to proportion the design and the size of the rug correctly. In most cases simple designs are the best ones, especially if the rug is to be used in a room which contains other furnishing fabrics that are patterned. The rug design is drawn on the hessian also with coloured pencils or crayon, transferring the design motifs and pattern shapes, while enlarging them from the size drawn on the graph-paper. Enlarging is very easy to do. The squares on graph-paper are 1 in. and

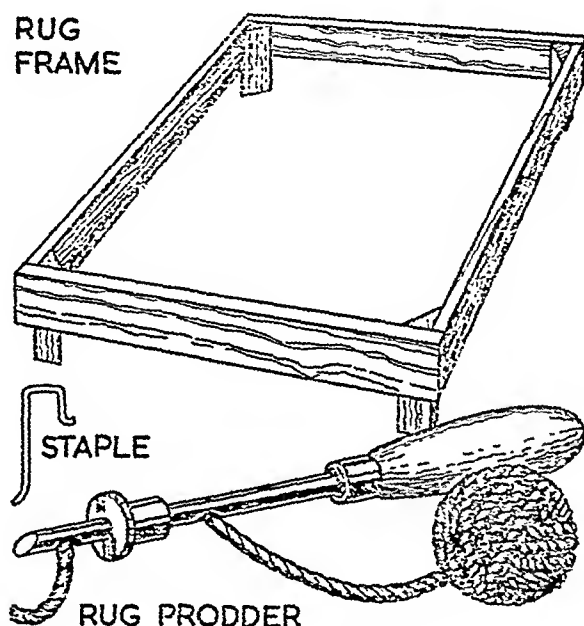


Fig. 209.

if each square on the paper represents a square foot of the finished rug, lines separating the hessian into 12-in. squares are drawn on the foundation material; in this way each part of the design in each square of the graph-paper pattern is transferred to the larger square on the foundation material. With this done a section of the hessian may be stapled to the frame. In addition to self-design rugs, hessian foundations with printed designs on them are obtainable from most handicraft shops.

The prodding tool illustrated in *Fig. 209* is fitted with a gauge. This is the piece of metal fitted over the tubular part of the tool and the gauge is adjustable; by altering the position of the gauge, the depth of the pile in the prodded rug may be varied. The complete beginner to prodded rug-making should practise using the tool with various gauge adjustments on odd pieces of hessian before making a rug.

The pile on the material may be rug wool or strips of fabric cut from old, waste pieces of material. If odd scraps of fabric are used, they should be cut into strips with a pair of scissors. A sensible width for the strips is $\frac{1}{2}$ in., and the strips of cut material should be sorted into piles of different colours. It is not necessary to cut the pile material into short pieces before commencing to make the rug and prodded rugs are best made from continuous lengths of material, be they wool or strips of fabric.

The method of threading the prodder is illustrated in *Fig. 209*, which shows that the length at the end of a strip of rug wool or fabric is passed through the upper eye in the shank of the tool and is brought out again through the lower eye. In use the prodder is simply pierced through the foundation material until the face of the gauge meets the hessian or sacking backing. The tool is then withdrawn and is again prodded through the foundation and this sequence of actions is continued. As this is done, loops of the pile material are formed on the underside of the backing which is, of course, really the face side of the rug. The loops are best worked in straight rows backwards and forwards across the backing, unless a small-motif pattern is being formed, in which case a complete section of the pattern in one colour may be completed at a time before cutting the strip of pile material on the face side of the rug to leave an end protruding. When the rug is finished it is necessary to turn under and stitch the edges of the backing, therefore a small section of hessian—about 2 in. wide—should be left unworked on each side of the backing. As each section of the rug is completed with the prodder, the hessian is unstapled and moved on the frame and the work is continued in this way, until the rug is completed. After a few minutes' practice the handyman will find that this method of rug-making is very speedy, in fact a good size rug can be made by hand in two or three evenings.

With all the pile prodded, the rug is removed from the frame and turned over on its face side. There are two methods of finishing. The loops may be left as they are, or the looped material cut through at the top of each loop with a sharp pair of scissors, as illustrated in *Fig. 210*. This part of the job may be regarded as a little tedious, but the cutting of the loops makes a better rug than one with uncut loops. With all the loops cut through any protruding tufts above the surface of the pile should be neatly trimmed with scissors. The rug is then edged by turning under 2 in. of hessian all round and oversewing the edges to the backing as illustrated in *Fig. 210*. It is not really necessary to add a back to this type of rug if the hessian or sacking is substantial. The rug may, however, be finished by coating the back with a latex rug-backing material which is obtainable from local handicraft shops and from most departmental stores. The latex backing is simply brushed on to the hessian with a clean paint-brush and is left to dry. It has two functions—it helps to secure the tufts to the backing, also the coating of latex prevents the rug from skidding on a polished floor.

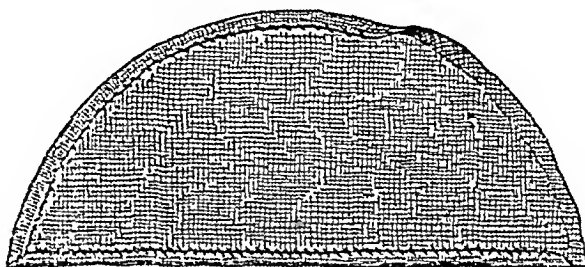
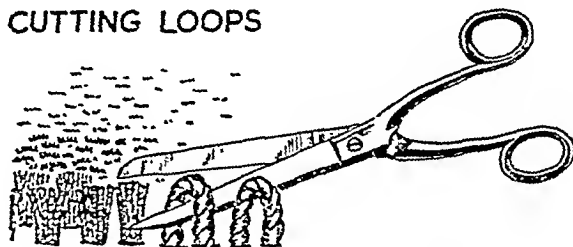
As an alternative to backing with brush-on latex, the rug may be backed with

FLOOR COVERINGS: LINOLEUM, CARPETS AND RUGS

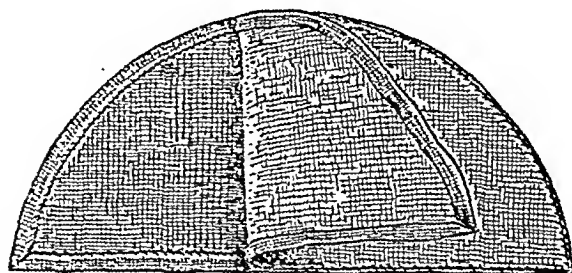
hessian or sacking and this is simply stitched to the edges of the foundation as illustrated in *Fig. 210*.

The method of making prodded rugs described above is quite quick to do by hand. Manufactured rugs of this type may be considerably speeded up by the use of an automatic prodder. In use the automatic prodder is clamped to the edge

CUTTING LOOPS



EDGES TURNED UNDER
AND STITCHED



HESSIAN BACKED

Fig. 210.

of a table. The rug-maker sits facing the prodder and the backing is placed with the design lines uppermost on the plate of the prodder. The prodding needle is actuated by a lever connected to a foot treadle, thus leaving both hands free to move the hessian as the prodder needle is worked quickly up and down by foot action. This method of rug-making will be found extremely speedy and the prodded rugs made with an automatic prodder are finished and backed in exactly the same way as the hand-made rugs described above.

Hooked Rugs: The development of simple rug-making machines has rather made the method of making rugs piled with a latchet hook rather old-fashioned, but—as we said at the commencement of rug-making—many handymen prefer the slower methods of rug-making, which are extremely relaxing, although slower than the automatic methods. A hooked rug is made on a foundation of open-mesh canvas. Open-mesh canvas is obtainable in lengths of widths varying from 12 in. to 48 in. The open-mesh canvas may also be purchased in rug sizes with printed designs stencilled on them. The special tool for making hooked rugs is the latchet hook illustrated in *Fig. 211*. Once the ‘feel’ of the tool has been acquired, by practising on an odd piece of canvas, the rug-maker will find it quite easy to use. The tool is used to knot the pile to the canvas foundation and the pile material is rug wool which may be obtained in skeins and may also be obtained in packages, cut ready to the exact length.

In the hooked method of making rugs the pile material is used in short lengths—not continuous lengths as in the prodded method described above. If the rug wool is purchased in skeins it will be necessary to use an additional piece of equipment to cut the lengths of wool into short pile lengths. This piece of equipment is a gauge which is simply a strip of wood grooved at one edge as illustrated in *Fig. 211*. In use the wool is bound round the gauge fairly tightly, and with an even tension. The pile strips are then cut to length along the slotted side of the gauge with a pair of sharp scissors or with a sharp handicraft knife. A handicraft knife is also illustrated in *Fig. 211* and this tool is recommended in preference to the usual razor blade which some people favour.

As an inexpensive alternative to rug wool, the short piled rugs—as hooked rugs are also termed—may be made from ‘thrums’. Thrums are simply odd lengths of wool left over from manufactured woollen garments, etc., in the mills. The thrums may be purchased quite cheaply in a good variety of colours. If thrums are used two loose strands of piling length are worked together with the latchet hook in place of one strand of the thicker rug wool. The thrums are cut into pile length, in exactly the same way as the thicker length of rug wool, by winding the thinner material over the pile gauge and cutting through with a sharp tool along the grooved edge.

Hooked rugs may be made in a wide variety of patterns and colours. If the foundation of open-mesh canvas is purchased from the roll it will be necessary to mark the design outlines on the canvas with coloured crayon. Self designs may be drawn with coloured pencil on graph-paper and the design sections enlarged and transferred to the plain canvas, as previously described for prodded rugs. Hooked rugs are best made with the unworked canvas resting, with the design side uppermost, on the knees of the rug-maker or on a table at which the rug-maker sits. The tufts should be worked in rows backwards and forwards across the width of the canvas and the pile tufts should *always* be worked in the same direction. It may be considered that this form of rug-making may be speeded up with two

persons working the same rug, each rug-maker commencing from opposite ends. This, however, is extremely bad practice as the direction in which the latchet hook is used governs the 'fall' of the pile. If a hooked rug is commenced from both ends, at the same time, the pile will run in two opposite directions and this fault will always be visible throughout the lifetime of the rug. Hooked rugs, however, may be made by two persons sitting side by side and working in the same direction. The method of knotting the tufts is simple, this is illustrated in *Fig. 212*.

A latchet hook, which is illustrated in *Fig. 211*, consists of a metal shank with a bent and hooked fore-end, the opposite end of which is fitted into a wooden handle. The latch is the small hinged piece which rises over the shaped part of the shank in front of the hook. The latch has a swivel mounting which enables it

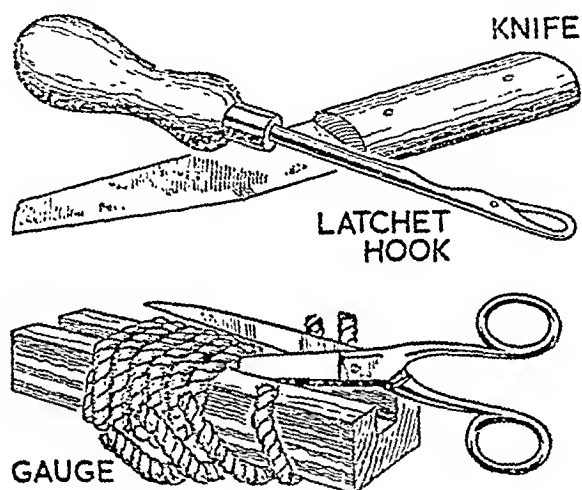


Fig. 211.

to open and close automatically as it is pulled and pushed through strands of the open-mesh canvas.

To work the latchet hook a cut strip of the pile material should be held in the forefinger and thumb of the left hand to form a loop (see *Fig. 212(a)*). With this done, the latchet hook is passed under two of the crossing strands of the canvas, as shown in the illustration, with the latch open. The looped pile length is then hooked over the curved end of the latchet hook which is pulled back towards the user. As the tool is withdrawn the latch closes automatically. With the loop drawn under the double strand of the canvas the tool is pushed through the looped pile when again the latch opens automatically. The point of the tool is then guided over the double strand of canvas turned on one side and the hook portion of the tool placed under the ends of the tuft (*Fig. 212(b)*). With this done the latchet hook is again pulled towards the user so that the ends of the pile are pulled through the loop to form the simple knot illustrated in *Fig. 212(c)*. The good rug-maker

will make a practice of turning the latchet hook in the same direction—either to left or to right—each time the pile is knotted. Constant variation of the turning direction in a rug may show in the finished pile.

The final job of securing the tuft consists of giving it a sharp tug to tighten the knot on the double strip of the open-mesh canvas. At first this tool may be found a little awkward to use, but after forming one or two rows of the pile the rug-maker will acquire the 'feel' of the tool and be able to speed up its operation. Each tuft of the pile is formed in exactly the same way as described above and making the rug simply consists of repeating the sequence of action to form each tuft. After all the tufts have been formed any irregularities in the tips of the pile should be trimmed neatly with a pair of sharp scissors.

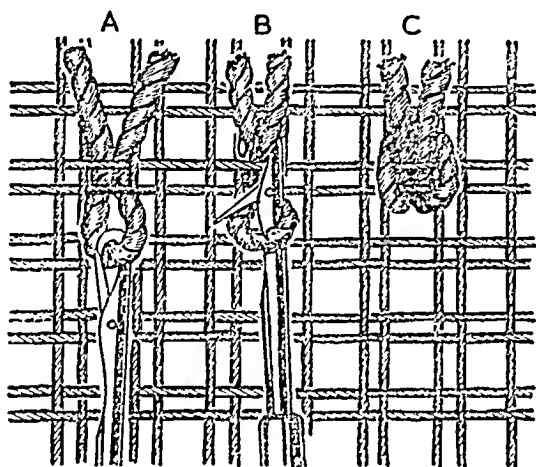


Fig. 212.

The hooked rugs are finished by turning under the edges and stitching them to the foundation. The best method of treatment for the short ends of the rug is to turn them over when the rug is started and working the first three or four rows of tufts through the double thickness of the material. If this is done, all that is necessary is to turn under the selvages of the canvas at the wrong side of the rug and stitch them firmly to the backing.

The life of hooked rugs may be prolonged by backing them. This may be done by giving the back of the knotted pile one or two coats of a latex rug backing, which is applied with a paint-brush. Alternatively the rugs may be backed with hessian or sacking provided it is clean and unseamed. The piece of hessian for the backing is cut slightly larger than the rug itself, the edges of the backing are turned in all round and the fold stitched to the edges of the rug foundation.

There is no automatic device which replaces the hand latchet hook used for making hooked rugs but there is an automatic device which may be used to make

these short pile rugs. The tool is fitted with two handles which slide up and down on the body of the tool which has a pointed needle at the working end. The needle is hollow and has an eye through which a continuous length of the pile material is threaded. The tool is used from the back of the foundation which is held in place by spreading it over a rug frame as described above. In action the handles of the tool are worked up and down in alternate order—this loops the pile material through on to the face side of the rug. The tool is fitted internally with a small pair of scissors which cuts each looped tuft to length as it is formed.

Plaited and Braided Rugs: One of the oldest methods of rug-making consists of braiding or plaiting strips of material and stitching them together. Rugs of this type are usually known as 'thrift' rugs because they can be made with odd scraps of discarded fabrics. They may also be made from rug wool but true thrift rugs are made from scraps of clean material from the household rag-bag. No special tool is required for making thrift rugs. The pieces of waste fabric are best cut into strips as illustrated in *Fig. 213*. This is done by cutting the pieces of material, which should be firmly woven and not easily frayable, into continuous lengths, by making the cut round and round the piece, as shown in the illustration. The width of the strips should be 3 in. With sufficient pieces to commence a rug cut out, they should be prepared by folding them as illustrated in *Fig. 213*. The folds are formed in the strips by pressing them with a hot iron, and the fabric should be dampened before it is pressed. The illustration shows how the folds are formed in the strips of material. With this done the continuous lengths of pressed and folded strips should be wound round a piece of wood.

It is not necessary to prepare the strips required to make a rug before commencing to make it. The rug may be commenced from any materials that are available and further parts of the work done as more materials come to hand. The folded strips of fabric may be plaited, which consists of working three strips into a plait, or they may be braided; braiding is a method of plaiting employing the use of more than three strands of material.

Plaited rugs are commenced by tying three of the prepared strands to the back of a chair as shown in *Fig. 213*. The colours of the strips may be varied according to the availability of the coloured materials. With this type of rug it is usually best to use the colours and change them in the plait as they become available and it is rather difficult, though not impossible, to plan a rug with a definite pattern, although this may be done with thrift materials by separating the strips of fabric into two or three groups of similar colours. The plaits are formed in the usual way by bringing alternate outside strands over the centre strand. As the lengths of material are completed they should be wound over a piece of wood. Care should be taken when joining any new strands of the plait not to have more than one new strand joined in at the same place. Joining is simply done by stitching the end of the new piece to the old piece.

When several feet of the plait has been worked the rug can be commenced. The

making is done by the method known as 'coiling' and *Fig. 213* shows some completed rugs of coiled plaits which may be round, rectangular, or oval in shape. To commence making a round rug the end of the coil should be turned to make a flat spiral and the joining edges of the plait are secured together by oversewing them, as illustrated in *Fig. 213*. It will be appreciated from this description that rugs of this kind can be worked and built up as materials come to hand. Oval

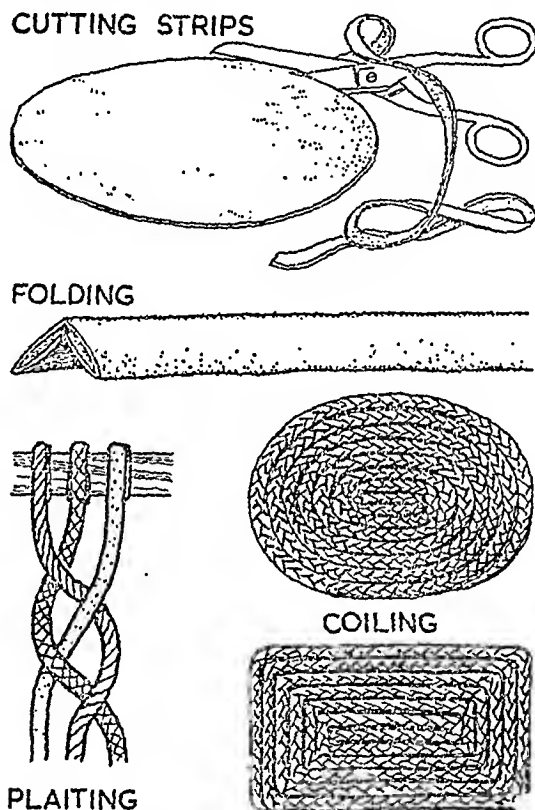


Fig. 213.

rugs are commenced by looping the end of the plait on itself as illustrated in *Fig. 213*. The meeting edges of the plait are sewn together and the plaited strip is then turned round the centre, stitching the edges together as the work progresses.

Rectangular rugs may also be made from plaited strands of material. For making rectangular rugs the centre is commenced by folding a length over on itself as illustrated in *Fig. 213*. The joining edges are stitched together and the continuous length of the plait is worked round the centre, taking care to square the corners as they are formed.

As an alternative to plaiting the strips of material for making a thrift rug, they may be braided. Strands for braided rugs are cut and folded in the same way as those for plaited rugs. Braiding is a little more difficult to do than plaiting but once the sequence of movements has become familiar it will be found quite easy to do. The illustration (*Fig. 214*) shows how a five-stranded braid is formed. The separate strands may be of different colours throughout the complete length or colours may be varied and intermixed as the braid is worked. In the illustration the braids are plaited from right to left and the ends of the strands are tied over a chair-back or a piece of wood which may be looped over a chair-back.

The five-stranded plait is worked in the following sequence of actions: strand two is brought over strand three, strand four is then brought over to the front of

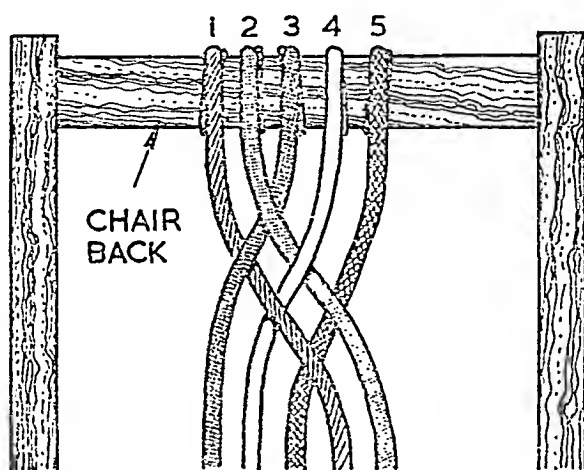


Fig. 214.

strand two, strand five is then taken under strand two and to finish the pattern of braiding movements strand one is taken under strand three. The sequence of actions is then repeated except that, of course, the braids are moved in the succession as above but renumbering them one to five from left to right in their new order. As each sequence of movements is completed the strands should be pulled firm and the completed braid should be kept flat and not be allowed to curl inwards at the edges. This method of working braided strips for rug-making may appear a little complicated to do, but in actual practice it will be found quite a simple matter to master the sequence of hand actions to form a perfect braid. When sufficient length of the braid has been made—say 2 ft. or 3 ft.—the braid may be worked into a rug in exactly the same way as the plaited strips described above. The braids should be kept flat when working them. To prevent the uncompleted ends of the braided strands becoming separated they may be held

together with a strong paper clip. Braided or plaited rugs do not require backing although their life may be prolonged by brushing the back of them with a latex form of rug-backing.

In addition to the methods of rug-making described above there are many other ways in which this craft can be worked and there are a number of appliances for rug-making, although those described above are considered most suitable for the average housewife. Rugs may be made on sewing machines with special attachments which are obtainable from machine manufacturers. Rugs may also be woven and this entails the use of a rug-weaving loom. Rugs may also be knitted or crocheted.

LAMPS AND LAMP SHADES

How to make shades and bases—tools—working sequence.

MATERIALS. *Foundation Frames: Types of wire—thicknesses—method of jointing—making lampshade frames—soldering—fittings—testing and checking frames. Covering Materials: Plastic, paper and fabrics—suitable materials. Finishing Materials: Braid and gimp—miscellaneous materials.*

PATTERN-MAKING. *Types of patterns—making panel patterns—patterns for 'Empire' lampshades—pattern formula—shaped panel patterns.*

COVERING. *Methods of attachment—stitching—thonging.*

MAKING LAMP SHADES. *Small Lampshades: Preparation of frame—binding—making a pattern—checking—economical use—punching thonging holes—attachment of panels—finishing. A Stitched Lampshade Cover: Preparation—use of buckram—attachment of the cover—finishing and decorating. A Fabric-covered Lampshade: Preparation of frame—pinning the cover—eliminating creases and wrinkles—stitching the cover to the frame. Alternative Method: Covering panels—attachment and finishing—lining. A Tailored Lampshade Cover: Shaping the parts—finishing. Pleated Fabric Lampshades: Suitable covering materials—preparation of frame—attachment of cover—forming the pleats—pinning and fitting—sewing and finishing. Alternative Method: Spiralled pleats—fitting and finishing. Fluted Lampshades: Covering materials—making flute patterns—cutting and shaping—holes and slits—joining the flutes—attachment of cover to frame—finishing and trimming. Pleated Lampshade Covers: Stiff covering materials—preparation and frame shapes—folding the pleats—attachment of cover—alternative method of attachment.*

LAMP STANDS AND BASES. *Bases for Table-lamps: Stopper fittings—alternative flex leads—drilling glass, etc.—weighting—treatment of wide-mouthed bases—use of back plates—bulb-holder sockets—covering bases. Standard Lamp Bases: Wooden standard lamp—turned standards—use of dowel rod—fittings.*

THE home manufacture of lampshades and lamp bases and stands is not beyond the scope of the handyman or handywoman. In fact, it is quite a simple matter to make a wide variety of attractive lamps and shades. The main tools for lampshade making are the usual pair of sharp scissors, a ruler and pencil, needles and cotton and a leather punch. This tool, which has not previously been described, is illustrated in *Fig. 215*. The leather punch shown has a revolving head which is fitted with cutters of six different sizes. It is also fitted with a gauge the adjustment of which governs the spacings of the holes and their distances in from the edges of materials.

The materials required for lampshade making may be grouped under three main headings. These consist of wire foundation frames, materials for covering the frames and decorative materials for finishing. The working sequence of lamp-

shade making is very much the same for shades of all different types, shapes and sizes. The foundation frames are prepared by enamelling them or by binding them with coloured tape. Patterns are made for marking the coverings to shape before cutting the materials. There are different ways of making patterns, according to the varying shapes of the frames, and the different methods are all explained in this section. The method of attaching the covers may also differ according to the type of lampshade being made and the covering material being used. These also are explained in the following instructions. The fitted covers are decorated by trimming them with gimp, braid or fringes, etc., or they may be decorated with transfers or by painting them.

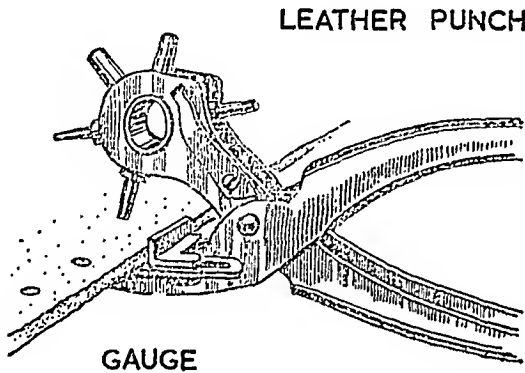


Fig. 215.

MATERIALS

Of the three main groups of materials, the wire foundation frames are, perhaps, the most important. If they are not well made or shaped a good lampshade cannot be made. Lampshade frames may be obtained in a wide variety of shapes and sizes from local handicraft shops, they may also be made by the handyman.

Frames: The best type of wire used for making lampshade frames is copper wire; brass wire may also be used but it is softer and more expensive than copper wire. Tinned galvanized wire may also be used for making lampshade foundation frames, but this material is less expensive than copper wire and it is considered inferior. The thickness of the wire used for lampshade foundation frames varies according to the size of the frame. Obviously the wire used for making a small candle-shade should be much thinner than wire used for making foundation frames for large standard lamps. The best type of manufactured frames are of copper wire with welded joints. The handyman may not be able to do spot welding, or have the equipment for it, but the joints may be neatly and strongly secured with solder. The handyman who wishes to make his own frames will require a stout pair of side-cutting pliers and a pair of round-nosed pliers, also a soldering

iron and for most handyman purposes an electrically heated soldering iron will be found best. The iron should be suitable for the voltage of the main electricity supply in the district where it is to be used, and a 60-watt electrically heated soldering iron will be found suitable for lampshade making and for other handyman purposes. Solder is required for making the joints and the best type of solder to use is that containing a core or cores of flux.

To make a lampshade frame, wire of a sensible thickness in relation to the type of frame is cut to the lengths required and is shaped by bending it either by hand or with a pair of pliers. A table of wire thicknesses for different types of frames is given on page 465. The best type of joint for soldering parts of a frame together are lapped joints and these are joints in which one end of the wire overlaps

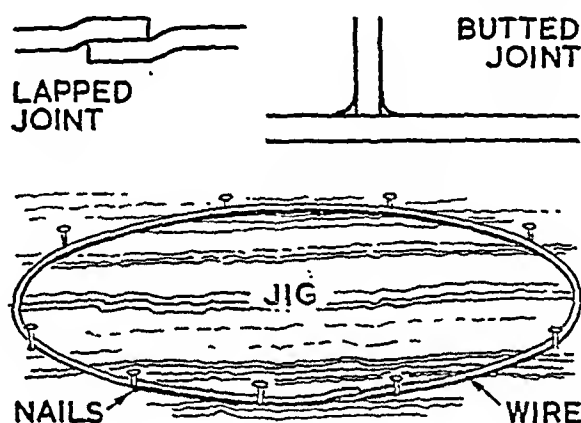


Fig. 216.

the adjoining piece to which it is being soldered. Lapped joints used in lampshade making are illustrated in *Fig. 216*. The parts to be soldered should be held firmly in a bench vice or they may be held in place for soldering by rigging up a simple jig consisting of nails, hammered into a piece of wood, as illustrated in *Fig. 216*. The wire of the joint should be heated by running over it with a hot soldering iron before melting the solder, and the heat of the iron should be such that the melting joint-metal flows smoothly over the joint. It is not necessary to thickly enclose the joining wires with solder and only a minimum amount of the jointing metal should be used. A few minutes' practice with some odd pieces of wire will soon give the handyman the feel of the job. Any rough edges of the soldered joint may be filed smooth when the solder has hardened.

In addition to the main members of a lampshade frame, which consist of top and base rings and side members, some fitted attachments will be required. The construction of some typical lampshade frames is illustrated in *Fig. 217*, also the fittings, which may consist of a gimbal incorporated in the top ring of pendant lampshades, or a gate-leg gimbal with hinged side members, the ends of which

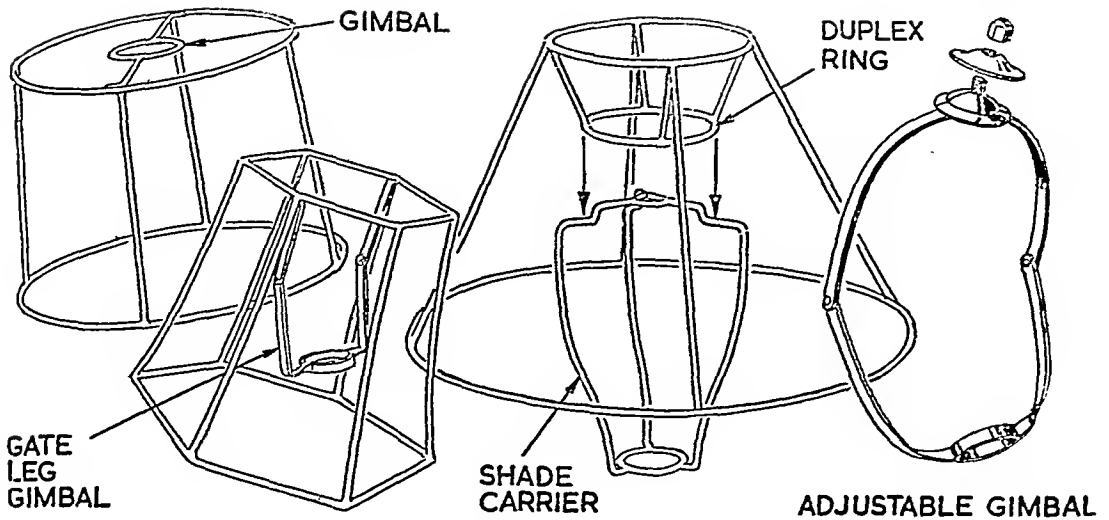


Fig. 217.

are soldered to the top ring of the frame. Gate-leg gimbals are used for table-lamps and reading-lamps where it is necessary to adjust the tilt of the shade. Standard lampshade frames are made with a large 'duplex' ring, secured by diagonal side members under the top ring, which rests on an attachment known as a 'shade carrier'. The shade carrier, and method of fitting it, is illustrated in *Fig. 217*. These are the main fittings for different types of shades. Any other fittings required will be described later in this section when dealing with different types of lampshades.

The gimbal for pendant lampshades consists of a single ring with wires continuing from each side, the ends of which are soldered to the top ring. The gimbal ring itself should be of a size to slide easily over a lamp-holder socket of standard size. These simple gimbals may be made by the handyman by bending a length of wire to the shape illustrated in *Fig. 218*. Gate-leg gimbals and shade carriers will be found rather difficult to make, and these may be obtained ready-made from local handicraft shops.

Foundation frames, whether purchased ready-made or made by the handyman, should be of a sensible size in relation to the type of lamp for which the shade is made and in relation, as far as possible, to the size and shape of the room. Obviously a pendant lamp of the type suspended on a length of flex from the ceiling rose would look equally ridiculous fitted with a small candle lampshade or a large standard lampshade. Some lampshade foundation frame shapes are illustrated in *Fig. 219*.

Purchased or home-made foundation frames should be tested before they are covered. This consists of going over the joints to make sure that they are all

secure and that none of them are fractured. The wires should be bright and free from rust; the wires should also not be kinked or bent, except, of course, where they are shaped, and the frame should be placed on a flat surface to ensure that it stands firmly. If there is any wobble it may be necessary to reshape some of the members with a pair of pliers or by hand.

Covering Materials: Lampshades may be covered with a very wide variety of materials, some of which are specially manufactured for this purpose. The main materials may be grouped under three headings: plastics, paper and fabrics. In addition to these there are other miscellaneous materials such as raffia, string, etc.

The selection of materials for covering a particular lampshade is largely a matter of individual choice. Lampshade frames may be covered with furnishing fabrics which are not unduly light-restrictive and the colour and design of the fabric may be such to harmonize with the decorative scheme of the room in which the

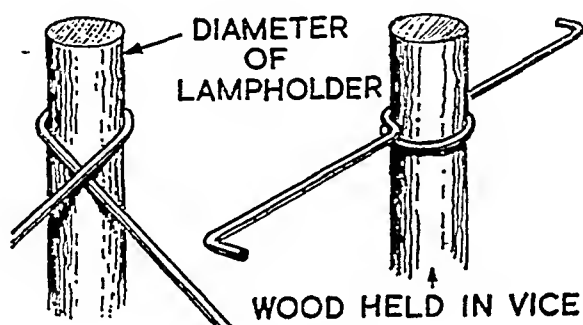


Fig. 218.

lampshade will be used. Almost any type of fabric may be used for covering lampshades provided it is not so heavy that it impedes the light and that the edges do not fray easily. The most suitable fabrics for covering lampshades are chintz, gingham, muslin, lace and silk. Another fabric which will be found extremely useful in lampshade making is buckram, which may be used by itself or to stiffen other materials. There is a very wide selection of plastics for lampshade coverings, the main one of which is 'Crinothene'. This is manufactured in a range of attractive colours, and is easy to cut and shape and to work. 'Crinothene' has a pleasing rough-textured patterned surface which is easy to keep clean by wiping it with a damp cloth. Many kinds of paper may be used for lampshade making and a good range of printed papers are specially manufactured for this purpose. Artists' papers of different kinds are excellent for covering many types of lampshades, and one of the most popular lampshade covering papers is parchment, which may be obtained in different qualities and colours.

Finishing Materials: These consist mainly of fancy trimmings such as braid, gimp, cords, etc., which are obtainable in a very wide variety of patterns, colours

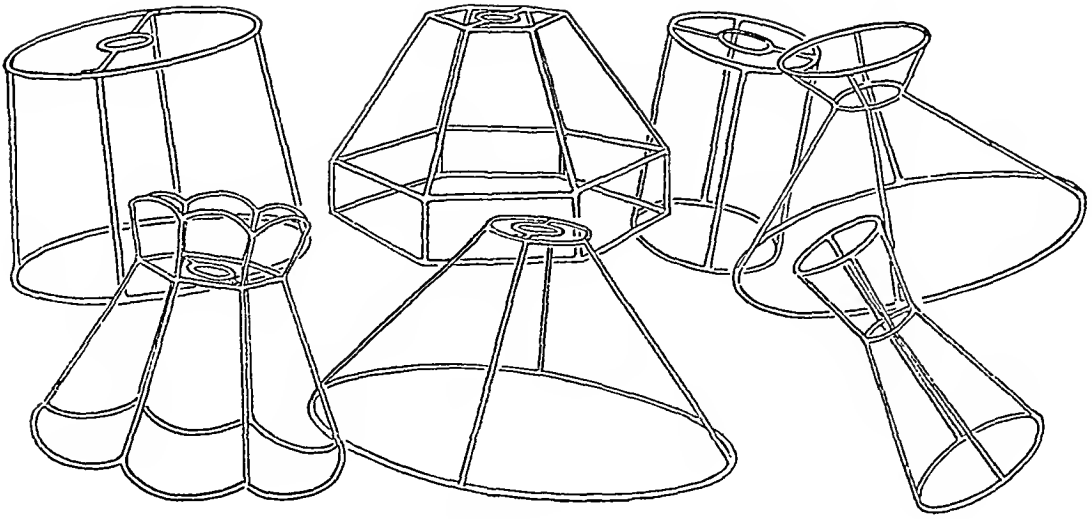


Fig. 219.

and sizes. Another finishing material is thonging, which is also used for attaching the lampshade cover to the foundation frame.

Miscellaneous materials for lampshade making include $\frac{1}{2}$ -in. bias binding. This is used to cover the wire foundation frames, mainly to provide a foundation to which covering materials may be stitched. Ordinary sewing cotton is used in lampshade making and the colour of the cotton, the bias binding and the covering material should be in harmony. Lampshade foundation frames for thonged lampshades may be prepared by enamelling or painting them but in most cases the use of bias binding for covering frames will be found more suitable. Also required will be some fabric adhesive, which is obtainable in tubes. This has many uses in lampshade making which will be explained later in this section.

PATTERN - MAKING

Before making most types of lampshades and cutting the materials to shape it will be necessary to make cover patterns. The method of making patterns varies according to the type of shade. If the shade is a simple one with flat panels, such as is illustrated in Fig. 220, with panels of all the same shape and size, it will only be necessary to make one pattern to the shape and size of one of the panels. The pattern is made of stiff uncreased paper. To make a paper panel pattern, place the paper on a smooth, flat surface. Place the lampshade frame over the paper and with a pencil mark round the *outside* wires of a complete panel. Remove the frame and cut the pattern to shape with a pair of scissors. Before using the pattern it should be tested against all the panels of the frame and should there

be any differences in the sizes of the different panels this should be allowed for when marking and cutting the covering material to shape.

Patterns for lampshades of the round Empire type, such as the one illustrated in *Fig. 221*, may be made by rubbing the outsides of the top and bottom wires on a rubber stamp inkpad and rolling the frame on a large sheet of paper. The ends of the pattern should be determined by making a mark on both outside rings and the position of these marks transferred to the pattern paper at the commencement and ending by rolling the frame on the paper. The end marks are then joined up with a pencil and ruler, but before cutting the pattern to shape extra should be allowed for overlapping of the ends of the cover. The foundation of the popular Empire type lampshade may consist of a top and base ring which are fitted separately to the cover and are not supported by wire side members. Obviously for making patterns for foundations of this kind it will not be possible to ink the rings

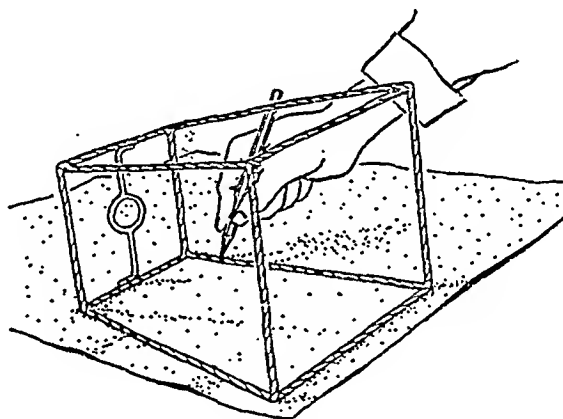


Fig. 220.

and roll them out on pattern paper. The patterns for lampshades of this kind are made by drawing them on a sheet of paper and a simple formula for making Empire lampshade patterns of any size is illustrated in *Fig. 222*.

The pattern diagram is drawn on a large sheet of stiff paper. A cross-section of the shade should be drawn full-size at the bottom of the pattern paper, and this elevation should be the exact size of the frame for which the cover is being made. With a true elevation carefully drawn, a line should be marked on the paper to run exactly through the middle of the cross-section—this is line A-A in the illustration (*Fig. 222*). A second line should then be drawn (line B-B in the illustration) to extend the angle of the right-hand side of the elevation. The junction of the lines A-A and B-B forms an axis for the arcs drawn from the top and lower left-hand corners of the elevation.

A smaller arc is drawn from the lower left-hand corner of the elevation to line A-A under the lower line of the elevation, using the junction of line A-A and the

lower line of the elevation as an axis. This small arc is divided into four *equal* sections. A pair of dividers is set to *one* of the divisions of the small arc, and the setting is marked on the outside large arc four times, as shown in the illustration (Fig. 222). The dividers are then reset to the extent of the four marked sections on the outer arc, and the distance is marked three times on the outer arc, from the end of the four sections towards line A-A. With this done, a line (C-C in the illustration) should be drawn from the last large section mark to the junction of lines A-A and B-B. The section of the drawing from line C-C to the left edge of the elevation is the pattern, and this part of the paper should be cut to shape with a pair of scissors.

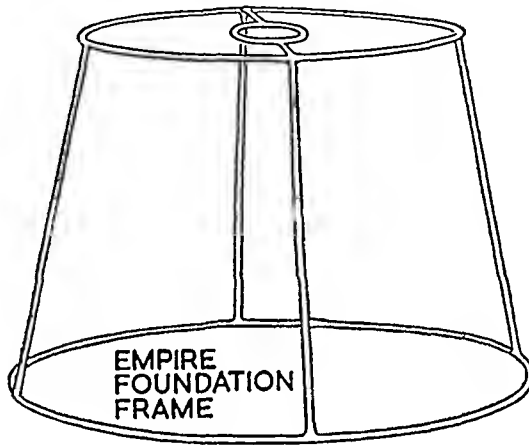


Fig. 221.

This method of making patterns for 'Empire' foundation frames—which are round frames with a top ring smaller than the lower one—may be used for 'Empire' frames of any size. When using the pattern a small allowance should be made at one end for overlapping the edges of the cover. The overlap is half an inch.

Patterns for shaped lampshade frames are just as easy to make as those for frames with straight sides. To make a pattern for a shaped frame a piece of stiff brown paper or wallpaper should be placed over a cushion or a pillow. The frame is then placed over the pattern paper as shown in Fig. 224, and a pencil is used to mark round the *outside* of the wires of the panel. The frame should be firmly pressed against the soft pillow or cushion so that the pattern paper is snugly shaped to the contour of the frame. Patterns of all kinds should always be tested on the frame with which they are to be used before using them for cutting out covering fabrics. If any error is made it is always best to have the pattern slightly larger than the actual size; if it is smaller the material will be wasted.

COVERING

Lampshade covers may be stitched or thonged to their foundation frames. Some types of covers may also be attached by clipping or cording them to the wire lampshade frames as in the case of pleated and fluted covers. The method of attachment may vary according to the construction of the shade and the materials.

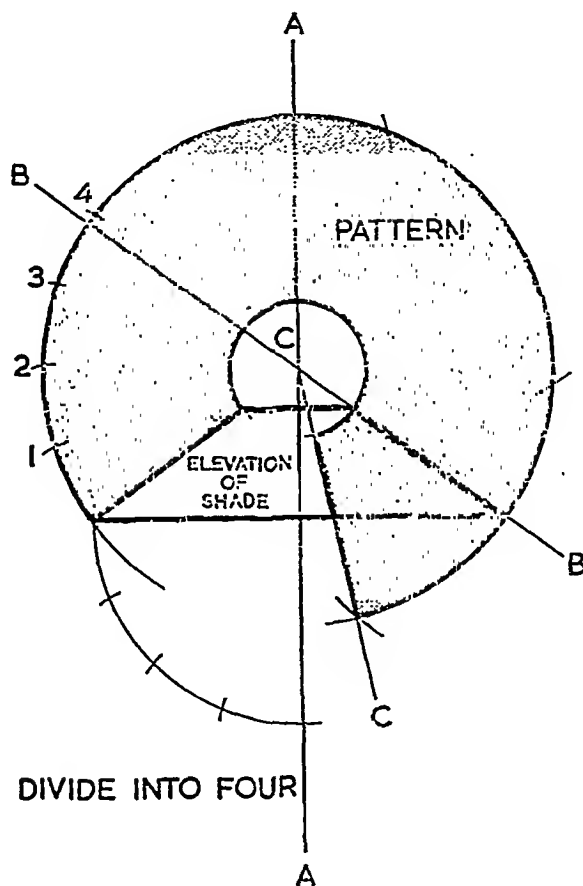


Fig. 222.

Fabric covers and most plastic lampshade covering materials are best stitched to their foundation frames, which are first covered with tape to form a foundation to which the covers may be stitched. Paper, parchment, stiff fabrics or plastics may be thonged instead of being stitched to secure them to foundation frames. The thonging material may vary from the usual type of thonging used in leather work to the use of narrow silk cord. To illustrate the different methods of making lampshades, a variety of shades and coverings are described below.

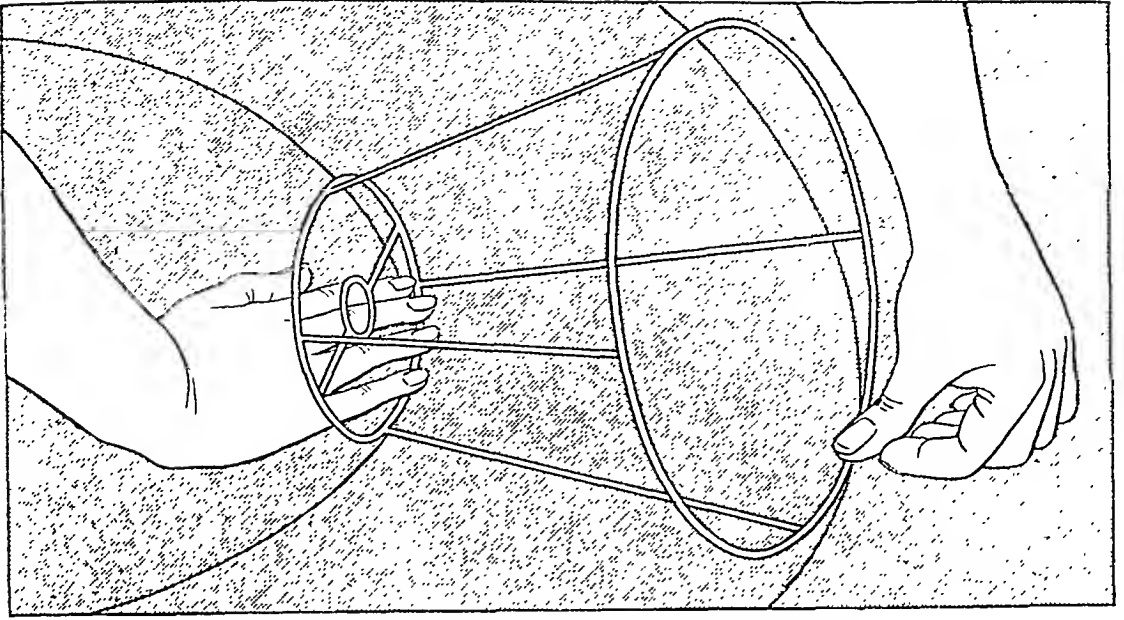


Fig. 223. Outlining an 'Empire' lampshade pattern on paper

MAKING LAMPSHADES

Small Lampshades: The first lampshade described is a simple one which is illustrated in *Fig. 225*. The frame is a small one composed of six shaped panels of the type used with a wall fitting, which is often referred to as a candlelamp. The foundation frame shown in the illustration (*Fig. 225*) has a butterfly gimbal. This fitting, which has not been previously described, clips over the top of the lamp bulb.

To commence, the frame should be inspected to ensure that all the joints are sound, that all the members are straight and unkinked and that there is no rust or corrosion on the metal. Any corroded parts of the frame should be cleaned by briskly rubbing with soft wire wool. With this done, the frame is prepared by painting or enamelling it in a colour to tone or harmonize with the colour of the covering material. Alternatively the wire frame may be bound with bias binding and this is generally considered the best method of preparation for all kinds of lampshade frames. The bias binding, which is $\frac{1}{2}$ in. wide, may be obtained in a very wide variety of shades of colours to harmonize or contrast with almost every type of covering material. The best method of binding a lampshade foundation frame is to cover all the upright side members first. To do this, the end of the bias binding is taken over the joint of a side member, and the top

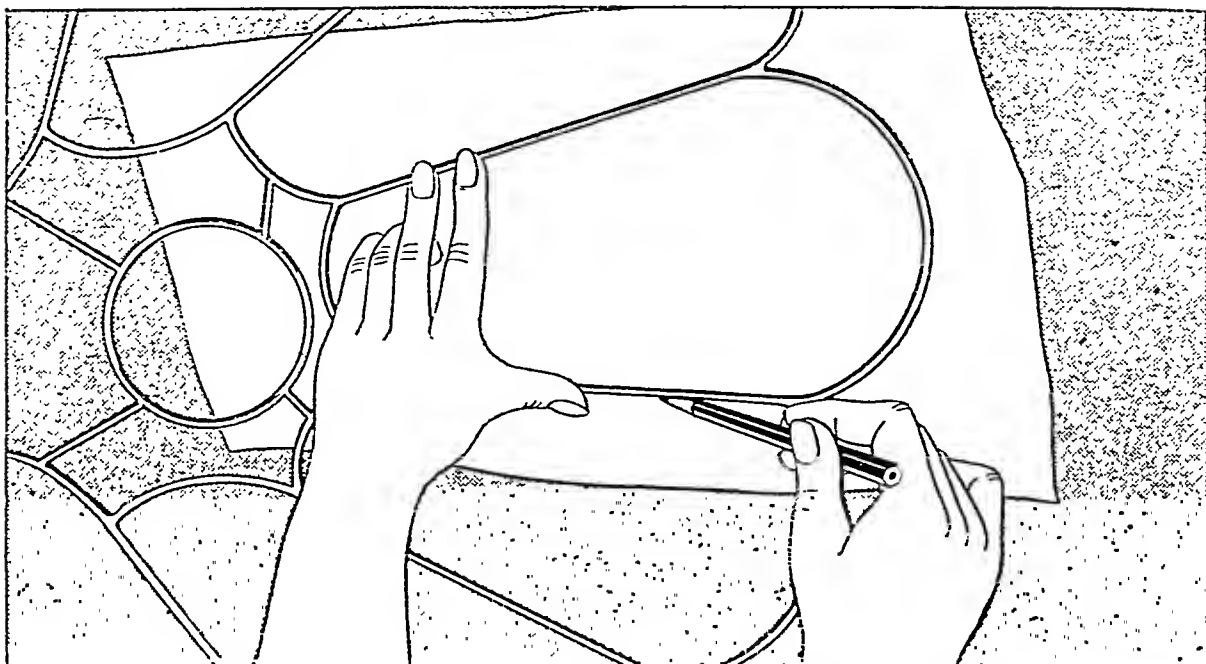


Fig. 224. Making a shaped pattern of a lampshade panel

member of the frame, and is bound over itself once or twice to secure the end. With this done the binding is bound round the wires. The binding should be pulled fairly tight and it is wound round to form a series of spirals, each edge overlapping the previous edge as shown in the illustration (*Fig. 225*). Continue binding down the member until the lower ring or bottom member of the frame is reached. At this point the binding should be taken over the joint, as it was to commence with, and the end fastened with a few stitches of cotton of the same colour as the binding, or alternatively, and the better method, secure the loose end of the bias binding with a spot of fabric adhesive. Each upright member of the frame should be bound in the same way and the top and lower members should be dealt with, taking care to secure all starting and finishing ends firmly. All the parts of the frame are bound except the gimbal.

With the bias binding neatly and securely in place, the next part of the job consists of making a pattern. For the type of lampshade described (*Fig. 225*) the pattern may be of stiff brown paper or thin cardboard. It is made as briefly described above, by placing the pattern material over a soft cushion or pillow and pressing the wires of one panel firmly on the cardboard or paper. The frame should be held quite still and the outside of the members enclosing one panel should be marked on the pattern paper with a pencil. Care should be taken in pattern-making to ensure the greatest accuracy. The pattern is then cut to shape

with a sharp pair of scissors. It is not necessary to make a separate pattern for each panel frame. The single panel patterns should be tested by placing it and shaping it against every panel of the frame before using it to mark and cut the covering material to shape. If the panel pattern is slightly larger than the one for

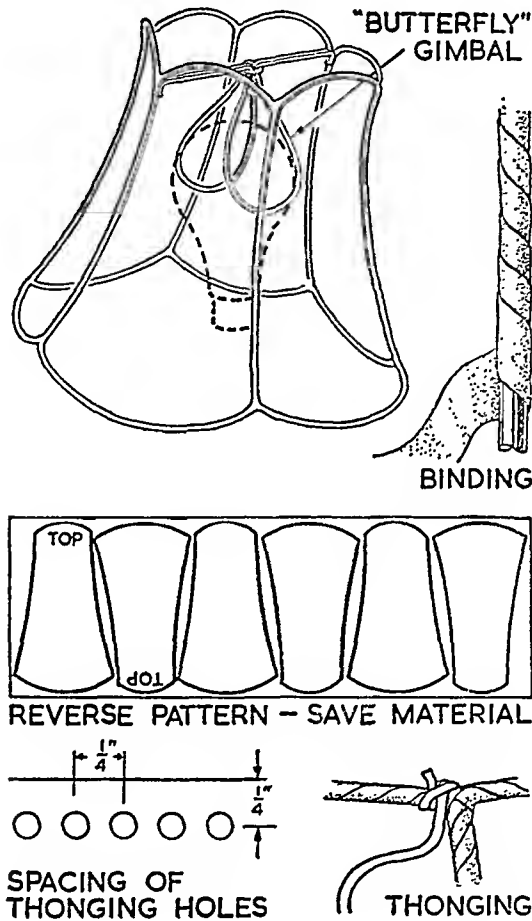


Fig. 225.

which it was made it is not necessary to make any adjustment, but if the pattern is smaller than any of the other panels, allowance for the difference in size should be made when cutting the materials.

The type of lampshade illustrated may be covered with any one of a variety of materials, but to illustrate this example the cover is described as 'Crinothene'

or acetate, both of which are plastic materials which are obtainable in a good range of colours. The pattern is marked round the covering materials to outline the shape of the six panels for the lamp. It will be found that plastic materials are not easy to mark with pencil and the best marking material to use is crayon or a chinagraph pencil. To economize in cutting the covering material, the panelled pattern should be reversed from top to bottom as each alternate pattern is marked, and this is illustrated in *Fig. 225*.

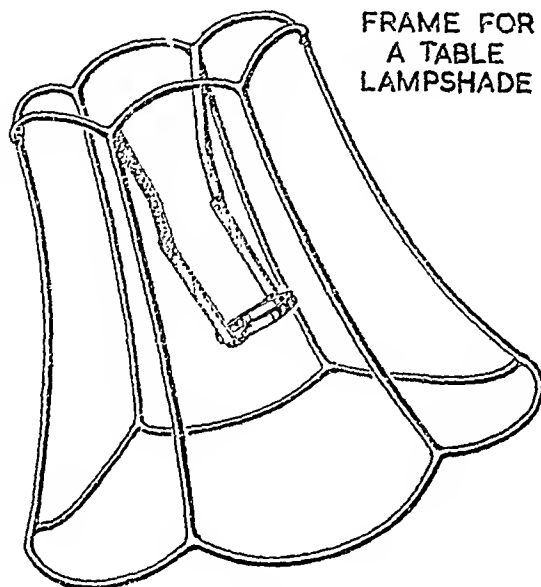
With all six panels neatly outlined, the covering material should be cut to shape—both 'Crinothene' and acetate may be cut with a sharp pair of scissors. The method of attachment for the candle lampshade described is thonging, and the finishing material is thin silk cord which may be the same colour as the covering material, or in a contrasting colour. Before the cover may be attached to the frame the panel pieces should be placed over the wire foundation frame to ensure that they fit and that the adjoining edges at the sides of the panel meet. Any trimming required should be done at this stage. With this done tiny holes are punched round all the edges of each panel. The holes are best punched with a leather punch of the type previously described in this section, and for the type of thonging described—thin silk cord—it will be necessary to adjust the head of the punch so that the smallest or second smallest cutter is used for cutting the holes. The thonging holes should be punched at about $\frac{1}{4}$ in. apart and $\frac{1}{4}$ in. in from the edge of each panel, as illustrated in *Fig. 225*. To regulate even spacing the punch should be used with a gauge. To speed up the work of punching the holes in the edges of the panel pieces, two or three panels may be clipped together and punched through at the same time. With the panel prepared, the cover should be attached to the frame.

To commence thonging one end of the thonging material is tied to the top member of the frame at a corner of a panel as illustrated in *Fig. 225*. With this done, two adjoining panels are placed in position on the frame and temporarily held in place with paper clips or clothes-pegs. The free end of the thonging material is then passed through the first hole of one panel on the underside and it is taken over the top of the edges of the panels through the topmost hole of the second panel, passed under the foundation wire and taken through the next hole in the first panel, the sequence of actions being repeated until the complete length of the panel sides is secured to the frame. If the end of the thonging cord frays easily this part of the job may be facilitated by threading the cord on a large needle, or the end of the cord dipped in nail varnish. At the lower edge of the sides, the thonging should be taken once round the lower frame member and the end tucked under one or two strands of thonging inside the lampshade, then cut through with a pair of scissors.

Continue attaching all the panels in the same way. The last strand of thonging used for joining the sides of the two last panels to their upright should not be cut off; it is used to continue the thonging round the lower edge of the lampshade

and when this edge has been completed the thonging is then taken once round the lower frame member, tied off securely and cut.

The top edges of the panels are thonged to the top member of the frame in the same way with a new length of thonging. Small lampshades of this sort usually require very little, if anything, in the way of trimming. The candle lamp shade may be finished by attaching a very short fringe to the lower edge. The fringe is stitched to the bias binding covering the lower member of the frame and the top edge of the fringe should meet the lower edges of the panels.



FRAME FOR
A TABLE
LAMPSHADE

Fig. 226.

A Stitched Lampshade Cover: The next lampshade described is illustrated in *Fig. 226*, which shows that the foundation frame is fitted with a gate-leg gimbal for use as a table-lamp. The method of attaching the cover is different from that described above, and the cover is stitched to the frame. It will be appreciated, of course, that the method of attachment of covers for different types of lampshades is a matter for individual consideration and most of them may be attached by any of the methods described for making the different kinds of shades in this section.

To commence with, the lampshade frame should be inspected, and this is always done for all types of lampshades, the inspection being carried out to spot any weak or fractured joints, bent wires, corrosion or any other faults in the frame. The frame should also be tested for balance and to ensure that it is not twisted out of shape. To do this, place the foundation frame on a flat surface when the

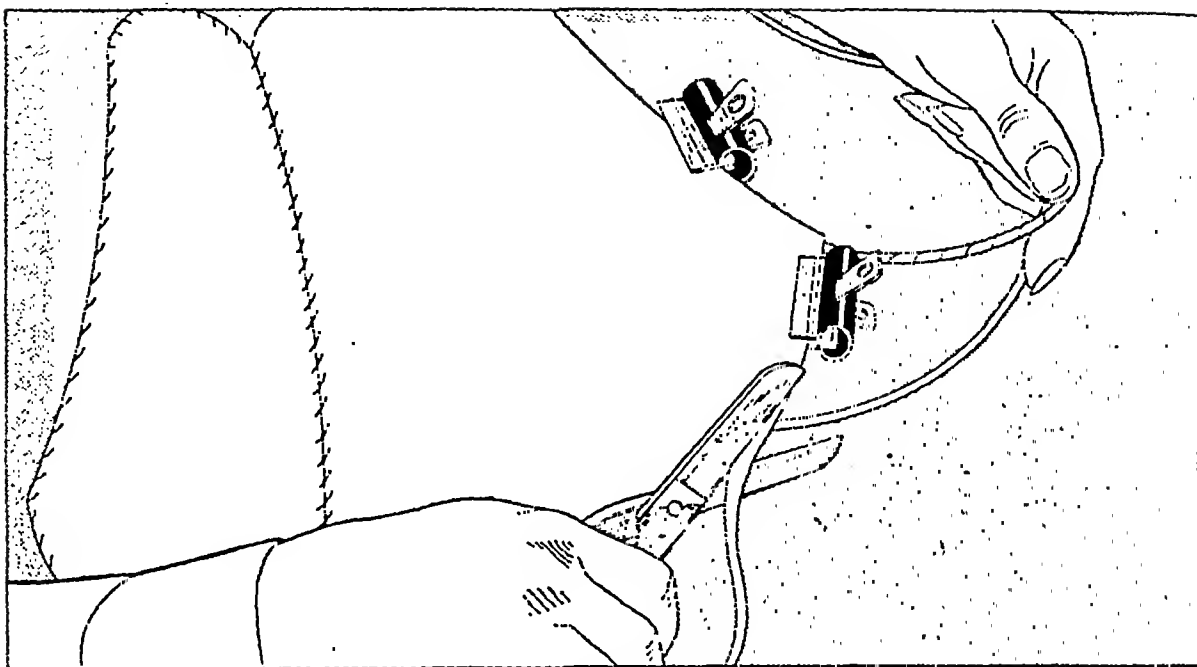


Fig. 227. Trimming the edge of a panel before stitching

lower edges of the base members should all touch the surface on which the frame is placed. If the frame rocks this is because there is some distortion which may be put right by gently shaping the wires with the hands.

The next part of the job consists of preparing the frame. This is done with bias binding as described above, taking care to firmly secure the ends of all the strips used. All the members of the frame are bound except the gimbal and the legs of the gimbal. If it is thought necessary the gimbal parts may be given a coat of enamel to tone with the colour of the cover. The table-lamp frame, which has shaped panels similar to those of the candle lampshade described above, is placed over the pattern paper and pressed against a pillow or cushion to shape the pattern paper to the contours of the wires. With this done, outline the shape of the pattern with a pencil and cut the pattern to shape with a pair of sharp scissors.

The covering material is described as being a stiff one. 'Crinothene' is suitable. Acetate is not entirely suitable for this type of cover as it is not easy to stitch. Repeated holing at the edges with a needle may cause the acetate to crack along the stitch-holes. Alternatively the lampshade may be covered with buckram. The buckram may be plain white or it may be attached to a patterned fabric, and small patterned fabrics are best for this purpose.

To cover a lampshade with fabric and buckram the pattern outlines of the panels should first be marked on the buckram, reversing the pattern for marking

alternate panel outlines to economize in the use of the material. With all the panel outlines marked on the buckram the strip of buckram should be cut from the main piece, leaving about $\frac{1}{2}$ in. all round the strip of material on which the panel shapes are marked. It should then be placed on an ironing-board with the markings downwards. The piece of fabric is then pinned to the ironing-board or secured with drawing-pins to cover the buckram with right side of the fabric uppermost. With this done, the fabric and buckram should be covered with a damp cloth and the cover strip gone over with a warm iron. The action of the damp cloth is to soften the glue in the buckram; the warm iron then presses the fabric on to the buckram and the cloth should be pressed until all the steam has dispersed. Remove the cloth and leave the cover strip in position on the ironing-board until the glue has reset. After this the panel shapes may be cut out in the usual way and it will be found that the fabric is firmly welded to the stiffening of buckram.

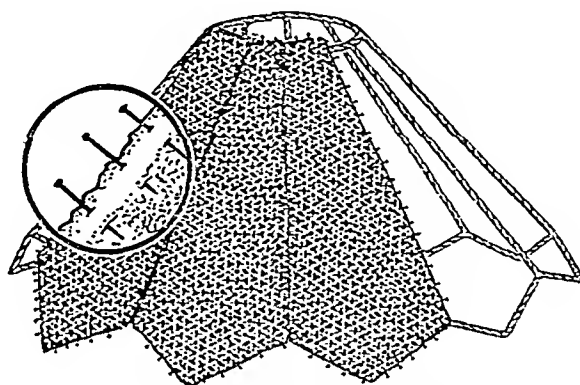
The attachment of the panels is done with sewing thread of a colour to match that of the bias binding. The panel cover is held in place on the foundation frame with clothes-pegs or large paper clips. The panel with the patterned material facing outwards is then attached to the frame by stitching through the edges of the panel to the bias binding over the foundation frame. Commence at the bottom right corner of the panel and oversew the edge of the piece of the cover to the bias binding, working upwards towards the top member of the lampshade. Before the top edge of the panel is stitched to the frame the clips at the top should be removed and the edge of the panel held against the frame to ensure that it is a perfect fit. If the edges of the panel overlap the frame they should be trimmed with a sharp pair of scissors before continuing stitching along this edge. The other two edges of the panel are attached in the same way and remaining panels of the cover are also stitched to the foundation frame. Fasten the thread off firmly when finishing each panel.

It may be considered that this part of the job of attaching the panels may be speeded up by stitching both sides of adjoining panels to their supporting upright member at the same time, but in practice this will be found extremely difficult to do and it would be found best by the amateur lampshade-maker to deal with each edge separately.

With all the panels secured the lampshade may be finished and decorated, and for this particular lampshade this is done with gimp, which is a form of decorative braid. Gimp of $\frac{1}{2}$ -in. width is suitable. The gimp has the dual purpose of adding a decorative finish to the lampshade, also covering the edges and seams of the panels. The gimp may be attached by stitching it or sticking it. The best method of attachment is to cover all the upright seams before treating the edges.

A fabric adhesive is useful for securing lampshade trimmings. The adhesive is supplied in tubes: a small amount of adhesive should be squeezed from the tube on to the seam; the adhesive is then spread lightly and evenly along the seam with the finger. With this done the gimp, one end of which may be held

firmly to the frame with a large paper clip, is then pressed firmly over the adhesive with the fingers, and the bottom edge of the gimp is then trimmed with a sharp pair of scissors. The fabric adhesive takes a few seconds to soak into the gimp and covering material, and after covering one or two seams the first one should be pressed firmly in position with a cloth. All the upright seams are covered with gimp before treating the edges. The method of attaching the edge gimp is exactly the same as that for the upright seams. If the gimp is stitched to the lampshade cover the cotton used should be of the same colour as the binding covering of the frame provided it does not contrast with the colour of the gimp. Use small stitches to sew the gimp over the edges and seams of the panels.



STITCHED COVER FOR
A STANDARD LAMP

Fig. 228.

A Fabric-covered Lampshade: The method of making this type of lampshade is described in these instructions for covering a frame for a standard lamp, but the same method may be applied to lampshades of other sizes for different purposes. The following instructions deal with methods of covering lampshade frames with fabrics which are not stiffened with buckram, and there are several different ways of doing this.

The first part of the job consists of inspecting the frame in the usual way, making sure that the wires are not corroded, bent, or the frame damaged. The foundation wires are then bound with bias binding of a colour to harmonize with that of the covering material. Care should be taken to fasten off the ends of the bias binding firmly and all the parts of the frame should be bound except the large duplex ring, suspended under the top member of the frame with short legs, but this part of the frame may be bound if the lampshade-maker considers it gives a better finish. Alternatively the duplex ring and legs may be prepared by painting or enamelling the wires.

This type of shade covering does not entail the use of a pattern. The material is stretched and pinned over the foundation frame and stitched in place. The most important general rule for making stitched covers is that the fabric should *always* be worked on the bias to ensure that tension is even all over the fabric cover. The lampshade is covered by treating one panel at a time and the material, on the bias, is pinned to the binding which covers the wires of the frame. The illustration (Fig. 228) shows how the pins are placed and it will be seen that each pin is placed at right angles to, and across, the wire, twice through the material and once through the binding. Plenty of pins should be used for this part of the job. The first two pins are placed one opposite the other at the point where the upright wires are shaped inwards. With this done, succeeding pins are placed one at a time at alternate sides of the first two pins positioned. As each pin is inserted the fabric should be gently stretched, but the tension on the material should never be really heavy. Continue round all the panel in the same way, until it is completely covered by the covering material, firmly attached with pins at about $\frac{1}{4}$ in. apart.

With this done the panel should be gone over a second time, commencing at the original point of starting. Working alternately each side of the first two pins placed opposite each other, each pin should be removed, the fabric gently stretched and the pin replaced. The repinning and stretching is done all round the panel to ensure an even tension all over the fabric and that any wrinkles and creases are smoothed out. When the panel covering is smoothly stretched over the frame wires the surplus material at the edge of the panel should be trimmed to within $\frac{1}{4}$ in. at the outside of the panel wires. The panel is then ready for stitching to the frame.

To do this properly, commence at the bottom right edge of the panel, remove one or two pins, fold the edge of the material under and commence stitching through the fold of the material to the centre of the upright panel member. Continue in the same way up the side of the panel, removing one or two pins at a time, turning the edge of the material and stitching it firmly to the bias binding over the foundation wires. Work all round the panel in the same way. If this is done properly there should be no ragged edges inside the cover, but if there are any they should be trimmed close to the supporting wires with a small, sharp pair of scissors. The remaining panels of the foundation frame are attached in the same way. The completed cover may then be trimmed to suit the individual and the top and bottom edges of the fabric cover may be covered and neatened with gimp or braid, which may be stitched in place and secured with a fabric adhesive. As an alternative to the use of gimp along the bottom edge of standard lampshades, a fringe may be attached. Fringes may be obtained in the same colour and pattern as the gimp used for covering the upright seams and top edges of the lampshade.

Lampshade foundation frames with small panels may be covered with fabrics by treating more than one panel at a time. This alternative method of stitching covers is illustrated in Fig. 229. Preparation is exactly the same as for any other

type of lampshade. The frame is checked and inspected and repaired, if necessary. The wires are then covered with bias binding, working the upright members first before binding over the top and bottom members. As an alternative to bias binding strips of the same material as the cover may be used for binding the frame. If this is done, one edge of the strip should be folded over and pressed, the raw edge being covered with succeeding spirals as they are turned over the wires.

The covering material must be used on the bias. To make sure that this is done a triangular corner of the material should be folded over or cut off, as illustrated in *Fig. 229*, and the cut or folded edge should be parallel with the top member of the frame. The fabric is pinned to the frame in exactly the same way as the method described above, except that two or three panels are covered at a time instead of treating each panel singly as previously explained. Commence pinning the centre panel as shown in the illustration with four pins placed at right angles across the members of the frame, pinning through the covering material and binding over the foundation wires. The fabric should be gently stretched between the pins, but it should never be pulled too tight. With this done the rest of the central panel should be outlined with pins, stretching the fabric gently as each pin is inserted. With all the pins in place the panel should be gone over again, commencing from the centre of each side of the panel and working outwards towards the corners, removing a pin at a time and gently stretching and smoothing the fabric before replacing each pin. With the central panel smoothed out and pinned, panels at either side should be treated in the same way, remembering to go over each panel a second time, removing the pins of the outside members of the panel and repinning after gently stretching the fabric. The covering of the three panels is then stitched to the frame in the same manner as described above. Commence at the lower right-hand corner of the three panels and work upwards, attaching the material to a shaped side member towards the top of the frame. This is done by removing one or two pins at a time as the stitching progresses. The edge of the material should be trimmed and folded over, and if the trimming is done properly there should be no ragged edges visible inside the frame. At the top of the right-hand upright member turn and work along the top edges of the three panels, trimming and turning as each pin or two is removed. The folded edge should be stitched firmly to the foundation of bias binding. Work down the left-hand outside member of the group of three panels then along the bottom edge of the frame. The two central upright members need not be stitched to the cover, and the pins may be removed as soon as the outside edges have been attached. The remainder of the cover is attached to the foundation frame in the same way as the first piece.

Both types of lampshade covers described above with panels attached singly or in groups may be lined. If this is done a lightweight material, such as lawn, is used for the lining and this should be attached before stitching the outer cover to the lampshade frame. The panels may be lined singly or in groups of two

or three and the method of attaching the lining is exactly the same as for the outer cover attached by the method described above, except that the edges of the lining material are turned outwards instead of inwards. With the lining secured the stitched cover should be attached in the usual way.

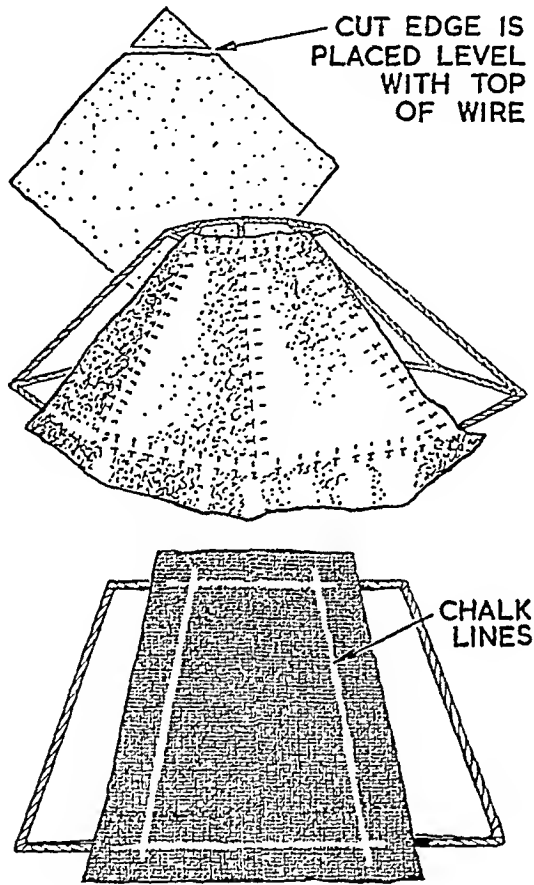


Fig. 229.

There is another method of stitching lampshade covers to foundation frames and in this method the cover is fitted to the frame but is removed for joining so that the upright seams do not require covering with gimp. This method is especially suitable for covering small frames. The frame is inspected and bound in the usual way and the fabric, which it must be remembered should be used on the bias, is then stretched and pinned over the panels. The panels may be treated singly as described above or two or three panels may be covered together

with the same piece of fabric. The method of stretching and binding is exactly the same as for the other ways of covering the frame and with all the pins in position the edges should be gone over a second time, removing each pin and gently stretching the fabric until it is stretched evenly at the same tension all over the foundation wires. With this done, the outline of the fabric, be it covering one or more panels, is marked with chalk. Use tailor's chalk, and mark the fabric where it is pinned to the foundation wires as illustrated in *Fig. 229*. With this done, the pins are removed and the piece of fabric trimmed to shape, leaving a margin of $\frac{1}{4}$ in. for turning and seaming the edges. The remaining panels are covered in exactly the same way, after the fabric has been finally stretched, and the inside edges are marked with chalk before removing the cover. The pieces of the cover may be joined by hand or machine with the seams on the inside. With this done, the cover is placed over the foundation frame and smoothed out and the seams joining the upright edges are placed exactly over the side members of the foundation frame. The cover should be carefully smoothed to remove all wrinkles and creases, and the top and bottom edges pinned to the binding covering the upper and lower members of the frame. With this done, the edges of the lampshade cover are trimmed, turned under and stitched neatly to the binding. If it is necessary to line this type of frame the lining is best secured by the method explained above before attaching the seamed cover to the frame.

Pleated Fabric Lampshades: Some very attractive fabric-covering lampshades may be made by pleating the covering material and two methods of making pleated fabric lampshades are described below.

In the first method the pleats are straight and vertical from the top to the bottom of the shade; in the second method the pleats are twisted and spiralled. The straight pleated shade is best made on a foundation of an 'Empire' lampshade frame as illustrated in *Fig. 230*. The covering material should be as light and thin as possible; because it is pleated there are several thicknesses of the material in the finished cover. Lightweight materials such as georgette or nylon are suitable; if thicker materials are used the light may be restricted and the cover would appear cumbersome. The shades may be lined or unlined and the method of lining the lampshade frame is the same as that described above for other types of fabric and covered shades.

The lampshade foundation frame should be checked before preparing it by binding the wires with bias binding of a suitable colour to go with the colour of the covering material. The frame illustrated has a depth of 10 in. and the strips of material used for the cover should be just over 10 in. wide to allow for the trimming at the edges. After binding the frame and attaching the lining, if one is considered necessary, the covering material is pinned to the top and bottom rings of the frame with the starting edge of the material running exactly along one of the supporting side members of the frame. The pins, which should be small ones, are used to attach the material to the tape-covered frame in exactly the same

may as described above in making other fabric-covered shades. With the starting edge of the material fastened in position the strip is folded to form the first pleat as illustrated in *Fig. 230*. The width of the pleat may be varied to suit individual taste. When covering this type of frame, which has a smaller top ring than a base ring, it will be necessary to fold the material so that the pleats are narrower at the top of the frame than at the bottom. As sizes of the frames vary the best method of determining variations of the taper is to test the pleating with an odd strip of thin material, or a piece of paper, which should be folded and attached to the frame with pins, working from one side member to the next and pleating

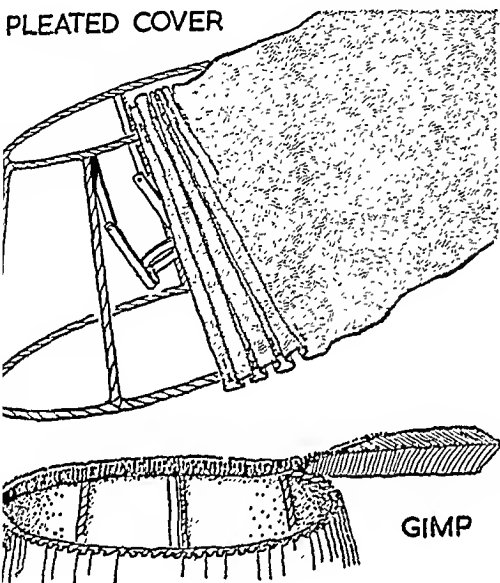


Fig. 230.

**SPIRAL
PLEATS**

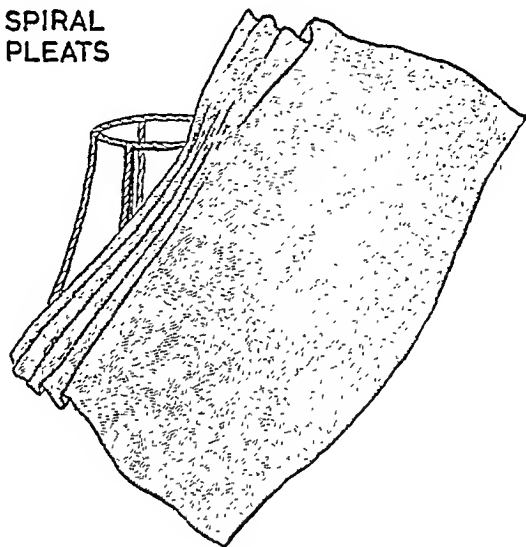


Fig. 231.

the material from left to right. A few minutes experimenting in this way will make it quite clear how the widths of the pleats and the taper may be varied.

After testing the pleating, the covering material should be attached, as described above, and pleated and pinned. Each pleat should be pinned as it is formed and as the pins are placed in position the material should be gently stretched from top to bottom of the shade. Continue working round the cover from left to right and finish by placing the end of the material under the fold of the first pleat.

It is not necessary to make the cover from a complete length of material and the pleating may be done with several short lengths, the end of each length being taken under the edge of the next pleat formed. After the cover is pinned in place it should be inspected and any slack pleats or wrinkles should be smoothed out

by removing top and bottom pins one at a time, gently stretching the material and repinning it to the frame.

When the cover is satisfactory it should be stitched to the top and bottom rings. To do this commence with the top ring, remove one or two pins, near one of the upright side members, and over-sew through the folded thickness of material. The overlapping edges of the pleats are trimmed off after all the edge has been stitched to the tape-covered foundation frame. With the top edge pleated the lower edge of the cover is stitched to the bottom ring in the same way as the first one, removing only one or two pins at a time and keeping the tension on the material whilst stitching it to the binding tape with small neat stitches. With the cover stitched to the foundation frame any surplus material overhanging the edges should be trimmed with a sharp pair of scissors and the top and lower edges of the cover are neatened by attaching gimp. The gimp should be of a good colour to harmonize or contrast in tone with the colour of the covering material. For this type of lampshade the gimp is best stitched in place rather than being secured with a fabric adhesive; the gimp should be wide enough to permit it to be turned over the edges of the top and bottom of the pleats as illustrated in *Fig. 230*. Attachment of the gimp completes the shade.

The alternative method of making a pleated fabric cover consists of folding the fabric to form twisted spiral pleats as illustrated in *Fig. 231*. The action of twisting the pleats curves the covering attractively and the best type of foundation frame for this type of lampshade is the curved 'Empire' type illustrated in *Fig. 231*. The covering material may be nylon or georgette as previously described and the lampshade may be lined or unlined to suit the individual. In most cases fabric-covered lampshades look best when they are lined. The foundation frame illustrated in *Fig. 231* has six panels which are separated by six curved side members. Before lining or attaching the cover the frame should be checked and prepared in the usual way by covering the wires with bias binding.

The method of pleating is much the same as for the straight pleated lampshade described above. For covers for frames of different size the sizes of the pleats are best determined by testing with an odd piece of thin fabric or paper. To cover the type of frame illustrated the material is placed diagonally over the side of the frame as illustrated in *Fig. 231*. With this done the starting edge of the material is pinned to the top of the frame where it meets one of the upright side members. The lower edge of the first part is pinned to the bottom of the frame and this should be attached at a distance of approximately one-third of the circumference of the lower ring as shown in illustration, by pinning the edge of the fabric to the lower frame member where it meets the second side member on the left of the member to which the top of the pleat is pinned.

With this done the pleats are folded and pinned to the frame in exactly the same way as described above, for making the straight pleated cover, and the bottom of the pleats should, in the same way, be wider than the pleats at the top of the

frame. As each pleat is folded and pinned the material should be gently stretched to make a tight and firm cover. This stretching should be done sensibly so that the pull of the material does not distort the frame by compressing the side members. Continue working round the foundation frame from left to right, folding and pinning each pleat carefully in place. This type of cover is best made from one length of material but it may be made from shorter lengths than the full cover if the ends are neatly secured and hidden in the folded pleats. The last end of the final strip should be tucked neatly under the first pleat. With this done the cover should be checked and any wrinkles or badly formed pleats put right by removing one or two pins at a time, smoothing and correcting any errors and replacing the pins. The cover is secured to the frame by stitching through the edges at the top and bottom exactly in the same way as for the straight pleated cover described above. The edges of the cover are trimmed with a pair of sharp scissors, and gimp of a good width and suitable colour is stitched in place round the top and bottom edges of the lampshade frame.

Fluted Lampshades: Another attractive type of lampshade cover is made by fluting the covering material, as illustrated in *Fig. 232*. Each flute is made and cut separately and the flutes are joined together at the edges to make a full-length cover before attaching it to the frame. Fluted lampshades can be made in all sizes from very small ones to large standard lampshades. They are made on an 'Empire' frame which may, or may not, be supported by side members. The foundation frame should be checked and prepared in the usual way by binding the large rings and side members, if there are any, with bias binding of a suitable colour to tone with the covering material. The material from which the flutes are made may be stout artists' paper, stiff plastic material—such as 'Crinothene' or acetate—or parchment or buckram. The latter may be plain buckram or fabric-covered buckram. The method of attaching fabrics to buckram has been described above.

It will be necessary to make a pattern for the flutes before cutting the material to shape, and as this method of covering may be used for shapes of varying sizes it is necessary to make the flute pattern from a simple formula which is illustrated in *Fig. 232*. The pattern drawing shows that the flute is wider at the bottom than at the top. A stitch line is shown on the pattern and this is necessary for joining the edges of the flute together to make a complete cover. The finished cover is attached to the foundation frame through slits and holes cut in the edges of each flute, the positions of which are shown in the illustration (*Fig. 232*). The length of the flute should be such that it protrudes from 1 in. to $1\frac{1}{2}$ in. above and below the top and bottom rings of the lampshade. The amount of the overhang at the ends of the flute may be varied according to the size of the frame, a smaller overhang being allowed for on small lampshades than on the larger ones. The illustration shows that the width of the base of each flute should be equal to the dimension determined by doubling the circumference of the bottom ring of the

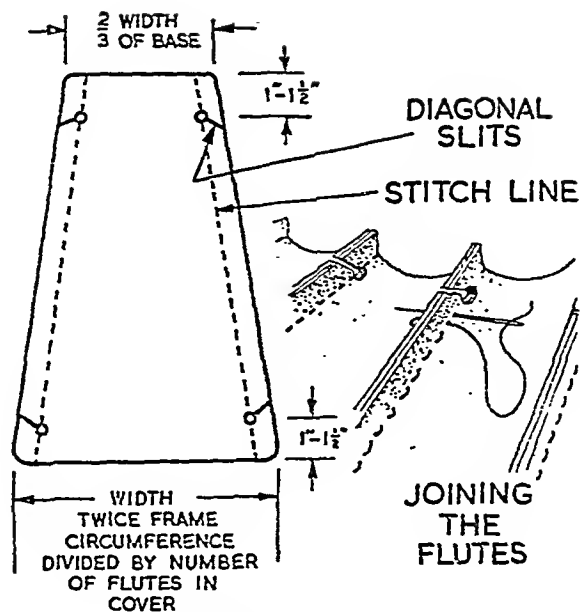


Fig. 232.

foundation frame and dividing this by the number of flutes in the cover. The number of flutes may be varied to suit the individual. Therefore, if the circumference of the bottom ring is, say, 50 in., twice this dimension will be 100 in., and if there are 20 flutes in a cover the 100-in. double circumference dimension is divided by 20 for the number of flutes in the frame to give the base-width dimension of 5 in. The width across the top of the flute as shown in the illustration (Fig. 232) should be approximately two-thirds of the width of the base of the flute. In this instance the width of the top of the flute as shown is $3\frac{1}{3}$ in.

With the dimensions of the flute pattern thus determined the outlines of the

pattern should be drawn on very stiff paper or thin cardboard. It will be seen from the illustration (*Fig. 232*) that each of the four corners of the flute are gently rounded and the corners of the pattern should be trimmed with a pair of scissors.

With the flute pattern made, it should be cut to shape and the position of the holes into which the wires of the frame are inserted through the diagonal slots should be marked on the pattern. The distance between the holes, of course, should be the exact depth of the sloping side of the frame. The pattern is then used to mark the covering material to shape. To economize in the use of the stiff covering material the position of the pattern should be reversed to mark alternate outlines as illustrated in *Fig. 232*. With the covering material marked out the flutes should be cut carefully to shape with a pair of scissors. With all the flutes cut to shape they should be placed together, three or four at a time, laid on a flat surface and covered with the pattern. The position of the four holes is then marked through the pattern with a sharp bradawl to pierce cleanly through the thickness of the three or four flutes. The holes are cut with a leather punch of the six-way revolving-head type previously described, the head being revolved until the punch of the same thickness as the foundation frame bound wire is opposite the small brass anvil. A punch gauge is not used for this particular operation. With this done, four holes should be punched in each flute and the separate flutes are completed by cutting a diagonal slit from the edge of the flute to the centre of the hole as illustrated in *Fig. 232*. The next part of the job consists of joining the flutes together with their edges meeting and with the face side of the material inside. The flutes are then held in position with wire paper clips or with clothes-pegs and the two edges of the adjoining flutes are secured by stitching through them. This is a job best done by hand and the method of forming the stitches is illustrated in *Fig. 232*. It will be seen from the illustration that the stitch line extends slightly beyond the punched holes and in a straight line from centre to centre of the holes. The remaining flutes are joined in exactly the same way to make up the full cover which, of course, when completed is inside-out. The cover is turned by bending and pushing the tops of the flutes through the ring formed by the bottom edges of the flutes.

With the cover turned right way out it is fitted to the frame. This is done by pressing the bound wires of the foundation frame through the diagonal slits into the punch holes. With the cover secured to the frame it should be gone over several times to ensure that the flutes are upright on the frame and that they are evenly spaced on the top and bottom rings. The cover is then secured to the frame by sewing it with one or two stitches where each flute meets the tape-covered wire.

The fluted covers may be trimmed or untrimmed. Both top and bottom edges can be finished by sewing gimp to the edges of the flute. Alternatively, the top edge of the cover may be trimmed with gimp and the bottom edge finished with a fringe of suitable length.

Pleated Lampshade Covers: Another method of attractively covering lampshade foundation frames consists of folding and pleating the covering materials. In this method the covering is a stiff material such as cartridge paper, buckram, or parchment, and not fabric as described above.

A pleated lampshade cover is illustrated in *Fig. 233*. It will be seen that this resembles in shape a coolie hat. The slant of the cover may be varied by changing

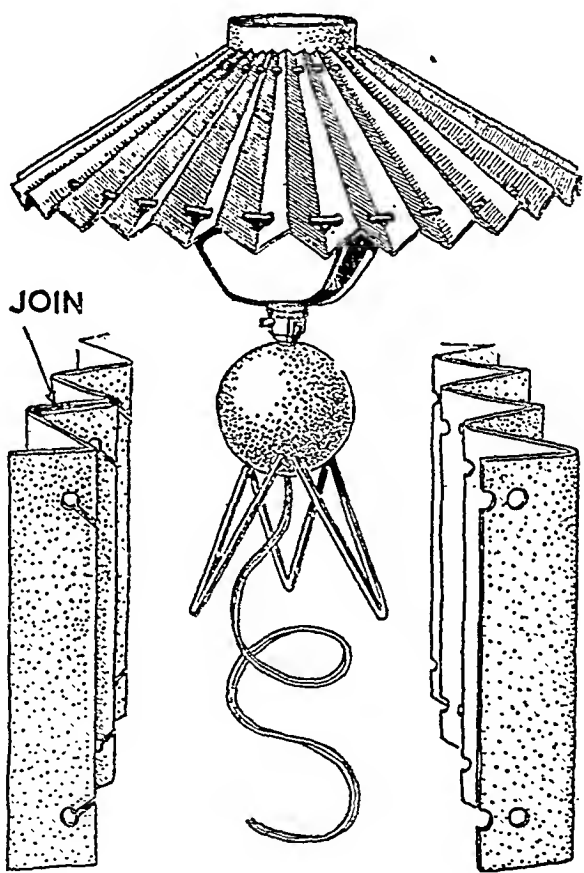


Fig. 233.

the sizes of the foundation rings to which the cover is attached. A large ring used with a small ring gives a lampshade cover of the shape shown in the illustration. If the top ring is larger and the base ring is smaller, the angle of the sloping sides is made less acute, and this may be varied to suit the individual.

The pleated cover is attached to a foundation frame consisting only of top and base rings which are not joined together with side members. The top ring should be fitted with a pendant or gimbal according to the type of shade being made.

The foundation frame should be checked for soundness and prepared by covering the wires with bias binding in the usual way. The cover is made of strips of the material selected and any stiff material which retains folds, such as buckram, parchment or paper, may be used, and some very attractive printed lampshade papers are obtainable from local handicraft shops. It is not necessary to make the shade from a complete strip of paper. Short strips may be used providing they are neatly joined, as explained later, to conceal overlapping edges. The width of the pleats may be varied to suit the individual. For most types of modern lampshades the pleats should be fairly narrow, varying in width from $\frac{1}{2}$ in. to 1 in. The width of the pleats decided on should be marked on the long edges of the strip. The width of the strip or strips should be sufficient so that the ends of the pleats overhang the foundation frame by about 1 in. to $1\frac{1}{2}$ in.

With the complete widths marked on the edge of the strips they may be folded and creased. This is best done with a thin metal rule. The metal rule should be placed across the strip with the edges of the rule meeting the measure marks at each side; the paper is then bent so that the edge of the rule forms a clean fold. With the fold formed the rule should be removed and the fold clearly defined by turning the paper over on the fold as illustrated in *Fig. 233*. Each fold should be carefully formed in the same way.

The folded strips are then punched through at top and bottom, as shown in the illustration, and punching is done with a leather punch, in the same way as described above for making fluted lampshades. With the holes punched, diagonal slits should be cut from the inside folds to the centre of the punched holes as shown in *Fig. 233*. The cover is then ready for attachment to the frame.

The method of securing a cover to the foundation frame consists of pressing the frame wires through the diagonal slits so that they rest snugly in the punched holes. If short strips of material are used to make the cover the ends of the strips should be overlapped as shown in the illustration to make the joins practically invisible. With the complete length of cover secured in this way, the pleats should be evenly spaced round the foundation frame and the cover fixed to the frame by one or two stitches where the cover meets the tape over the wires.

An alternative method of attaching pleated covers of this type is illustrated in *Fig. 233*. This shows that instead of the cover being attached to the frame through slits in the punched holes, a small half-circle is cut in the top and bottom edge of each one of the inside folds, through the centre of each fold (see *Fig. 233*). A hole is cut with the leather punch in a line with the half-circle clipped from the edges. The method of attachment then consists of threading narrow silk cord through the holes, fitting the cover over the foundation frame so that the outsides of the wire fit into the half-circles nipped in the edges of the folds. With this done, the pleats are then adjusted evenly round the lampshade and the cord is pulled up and tied in a neat bow.

LAMPSTANDS AND BASES

Lampstands and bases for table-lamps are quite easy to make from a wide variety of objects. There is one general rule applicable to both bases and stands and that is that the bases should be of such a weight that they are not easily knocked over with the addition of a lampshade.

Bases for Table-lamps: Bases for table-lamps can be made from vases, jars, decanters and bottles of all kinds. A very simple method of converting suitable objects is using an 'Adaptalite', which simply consists of a stopper—the diameter of which may be adjusted—which is fitted with a lamp-holder socket that incor-

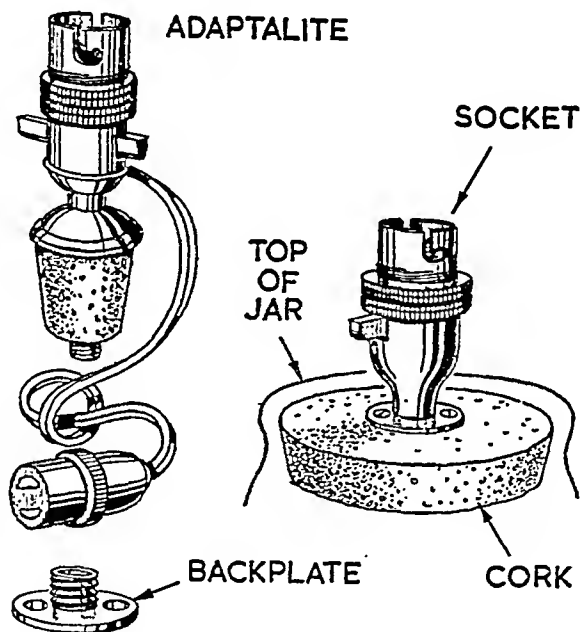


Fig. 234.

porates a push bar on/off switch. This type of adaptor, which is manufactured under the trade name 'Adaptalite', is obtainable with stoppers of three sizes. The diameter of the 'Adaptalite' sizes are $1\frac{1}{8}$ in., $1\frac{5}{8}$ in. and $2\frac{1}{8}$ in. They may be used for adapting jars, vases, bottles, etc., with inside neck diameters of $2\frac{1}{8}$ in. and under. The diameters of the three main sizes of 'Adaptalites' may be adjusted by peeling the stopper, so that this type of fitting may be used with necks of intermediate sizes of the three main ones given above.

The stopper should fit wedge-tight in the neck apertures. The connecting flex-lead, feeding the lamp-holder, may be fitted in two ways. If the flex is to run outside of the object used as a table-lamp base, it is fitted through a small hole in the side of the 'Adaptalite' as illustrated in Fig. 234. Alternatively, the

flex-lead may run inside the container through a hole drilled from the outside near the base, and the flex-lead taken to the lamp-holder socket through a centre tube in the stopper.

The development of carbon-tipped drills makes it a simple matter for the handyman to drill through glass, stone, earthenware or any other hard material. Carbon-tipped twist bits are made in standard sizes for use with any kind of brace or drill. In use the twist bit is fitted into the brace, etc., which is turned slowly for the carbon tip of the bit to eat its way cleanly through hard materials. If carbon-tipped twist bits are used in an electric drill it will be necessary to regulate the pressure so that the bit does not become over-heated. This may be done by fitting the drill to a bench stand and pressing the object to be drilled against the revolving bit. It should be appreciated that normally the speed of an electric drill is too fast to obtain maximum results from carbon-tipped twist bits, but if used in this way it is easily possible to regulate the pressure of the lampshade base against the revolving head of the twist bit. As a safety precaution it is advisable to wear a thick pair of gloves, and the hole in the base is bored by gently pressing the article against the bit.

Lamp-bases may be weighted by filling them with sand if the base is opaque or, in the case of transparent bases, by filling them with bath salts. If sand is used it will be necessary to plug the inside of the drilled hole through which the flex is threaded. This may be done with putty, after threading the flex and before fitting the lamp-holder to the top of the base. It should be appreciated that the 'Adaptalite' sockets may only be used for bases with inside neck diameters not exceeding $2\frac{1}{8}$ in. If the mouth of the object being transformed to a lampshade base is greater than $2\frac{1}{8}$ in., it will be necessary to construct a different fitting for adaption. This may be done by plugging the mouth of the object with a wooden or cork stopper snugly shaped to fit wedge-tight inside the aperture, as illustrated in *Fig. 234*. The stopper of wood or cork should be drilled with a hole in the exact centre to take the flex-lead if this is run inside the article being transformed into a lamp-stand.

The lamp-holder socket for the top of the wide-mouthed jar, etc., is of the type illustrated in *Fig. 234*, which incorporates a push bar on off switch. With this type of socket the inside of the tapered end is threaded so that it may be attached to a back-plate which is illustrated in *Fig. 234*. Before attaching the bulb-holder socket to the back-plate the latter is screwed to the plug so that the hollow centre of the stem of the back-plate is placed over the hole drilled through the plug. If it is intended to fit the flex-lead outside of the wide-mouthed object, it is not necessary to drill a hole through the stopper. The same type of socket is used and attached with a back-plate. These sockets have a small hole in one side, as illustrated in *Fig. 234*, for the outside attachment of the flex.

Some bottles and jars may be of attractive shapes, but embossed with the manufacturer's name. This may be easily obliterated by coating the base with

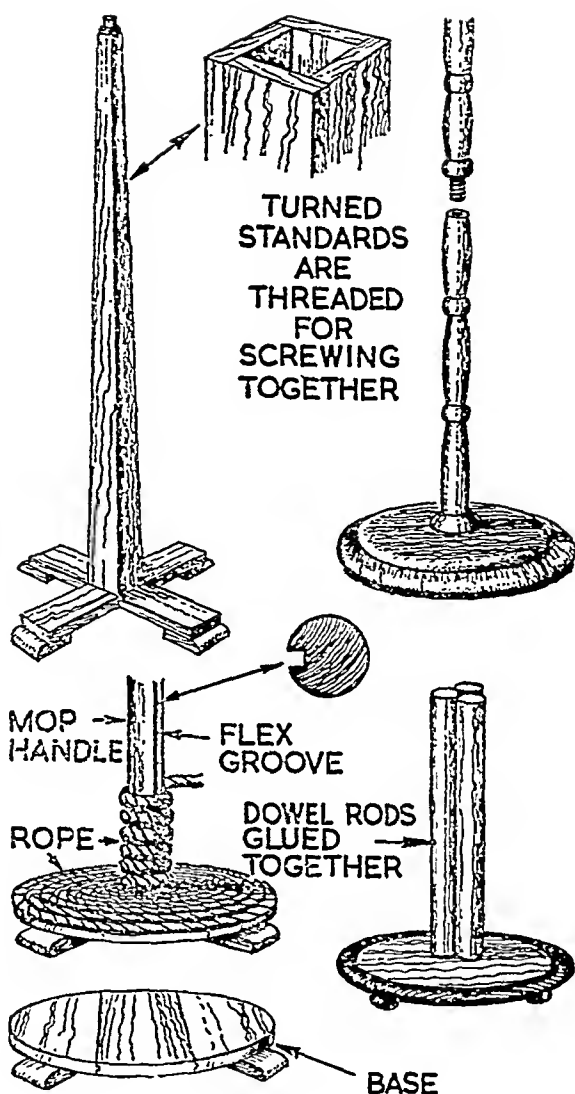


Fig. 235.

a thick layer of 'Alabastone'. While the covering is still soft it may be mottled with a comb or sponge. The 'Alabastone' consists of a powder which is mixed to a thick creamy consistency with water. The mixture may be brushed or trowelled on to the base with a putty knife. The article should be washed before applying the 'Alabastone', which dries quickly to provide a hard and pleasing finish.

Standard Lamp Bases: Some ideas for wooden lamp-standards are illustrated in Fig. 235.

The first one shows how four tapered pieces of wood may be fitted and joined together to provide the standard, which is attached to a suitable base, such as

the one illustrated. The thickness of the wood for making the standard may be from $\frac{1}{2}$ in. The base should be of stouter material from $\frac{3}{4}$ in. to 1 in.

Turned lamp-standards may be purchased ready for assembling and finishing. These consist of a standard which is threaded in sections, as illustrated in *Fig. 235*. The sections are simply screwed into each other. The standard is then screwed into a turned base, such as the one illustrated in *Fig. 235*. The centre of the standard is, of course, drilled to take the flex-lead. The top of standard lamps of this type should be fitted with a back-plate for the attachment of lamp-holder fittings of the type described above.

Some attractive lamp-standards may be made from mop-handles or dowel rod of 1 in. to $1\frac{1}{8}$ in. diameter. Two are illustrated in *Fig. 235*. One is made of a single length of mop-handle or dowel rod which is grooved along one side with a plough to take the flex-lead. The base simply consists of a circle comprising pieces of 1-in. thick timber, suitably edge-jointed and drilled, as shown in the illustration, to take the lower end of the standard. The flex should be placed in position in the ploughed groove before finishing the lamp-standard. This consists of binding it with thick cord—sash cord is suitable—or thin rope. The drawing of the finished lamp shows that the rope finishing may be coiled round the base. The rope is painted, but before this it should be singed with a taper to clean off any hairs. The coiled rope or cord should be given two undercoats before applying the finishing coat. A back-plate and push-bar lamp-socket is attached to the top of the standard.

Another method of making an attractive lamp-standard is to use three lengths of dowel rail or broom-handle as illustrated in *Fig. 235*. These are joined together by gluing with synthetic resin glue and it is not necessary to plough a groove for the flex as the placing of the rods leaves a space in the centre of the standard. The upright is secured to a suitable base as illustrated in *Fig. 235* and the top fitted with a socket as described above. The finish may be stained or polished or painted according to individual requirements.

TABLE OF WIRE GAUGES FOR LAMPSHADE FRAMES

<i>Type of frame</i>	<i>Wire gauge (Standard Wire Gauge)</i>
Candle-lamps	16 S.W.G.
Wall-lamps	16 "
Bed-lamps	16 "
Large Bed-lamps	14 "
Table-lamps	14 "
Pendant-lamps	14 "
Standard-lamps	12 "

PICTURE-FRAMES AND MIRRORS

WOODEN PICTURE-FRAMES. *Frame mouldings—use of mitre-clamps—jointing material—strengthening corners—preparation of glass—weights—framing a picture—backing—sealing—hangers.*

PASSE-PARTOUT PICTURE FRAMING. *Material and methods—requirements—preparation—framing—trimming and finishing.*

USES FOR OLD PICTURES. *Tea-trays and fire-screens.*

MIRRORS: *Type and weight of glass—protective coating—framing—backing and sealing—frameless mirrors.*

THIS final section tells the handyman how to put the finishing touches to the home with pictures and mirrors, and deals with methods of framing.

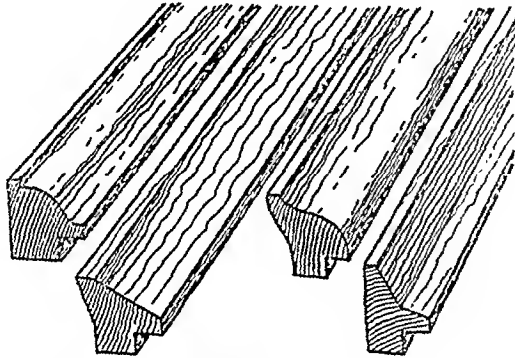
Wooden Picture-frames. By far the easiest way to make picture-frames is to construct them of wooden picture-frame moulding, which is obtainable in a good variety of shapes, sizes, styles and finishes. Some moulding profiles are illustrated in *Fig. 236*. Also shown in the same illustration is a device for mitring the corners of wooden picture-frames. This mitre-clamp has a slot which serves to guide the blade of the dovetail saw used to cut through the mouldings—as shown in *Fig. 236*—and the turn-screws are used when the device is employed to clamp the sides of wooden frames together. If many frames are to be made the work may be speeded up by using a set of four mitre-clamps—one for each corner—but if only a few frames are being made the job can be done with one clamp.

The best jointing material for the corners of the frames is a synthetic-resin glue, which provides maximum strength. If the frames are large ones their corners may be further strengthened by the insertion of slips of veneer in slots cut diagonally across the outside of the corners, as previously explained in the section on Cabinet-making. The corners of small frames are best nailed with very slender panel pins.

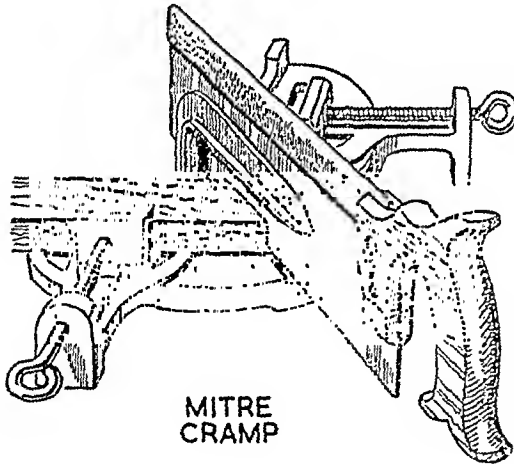
Modern picture-frame mouldings have rebates cut inside their back edges to take the thickness of glass, picture and backing. The correct glass to use for pictures is 15 oz., and this is the weight per square foot. The glass should be cut *slightly* smaller all round than the inside edges of the rebate in the finished frame. Cracking may be avoided by gently nipping off a small amount at each corner of the glass with a pair of pliers. If very large pictures are being framed it might be advisable to use a slightly heavier glass than 15 oz., and 18 oz. or 21 oz. would be more suitable according to the size of the frame.

The method of fitting and backing wooden-framed pictures is illustrated in *Fig. 236*. The frame should be placed face down on a flat surface and covered with an odd piece of carpet felt. The glass should be thoroughly cleaned on one side and placed in the ledge formed by the rebate, clean side uppermost. The picture is then placed face down over the glass, and the picture, mounted, or

unmounted (if cut to fit the aperture), is followed by the backing. Picture backing used to consist of thin strips of wood; but a better backing material is $\frac{1}{8}$ -in. thick hardboard which should be cut to fit snugly in the rebate, with the smooth side of the hardboard against the back of the picture. With the parts placed in position the frame should be turned right side up to ensure that the picture is straight,



PICTURE FRAME MOULDINGS



MITRE
CRAMP

Fig. 236.

and that it looks well viewed from the front; this should be done with the hardboard backing held firmly in position so that the picture will not move when again placed face down on the working surface. The next part of the job consists of securing the parts inside the rebate, and this is best done by hammering glazing sprigs into the sides of the rebate. Use a light hammer, or the side of a chisel, to tap the sprigs home, so that the edges of the sprigs hold the backing firmly

against the picture and glass. This should be done carefully—if too much pressure is asserted by the sprigs the glass may crack.

The framing is finished by sealing the edges of the backing, as illustrated in *Fig. 237* which also shows how the sprigs are positioned. The sealing material is thick brown paper cut into 1-in. wide strips, and these are attached to cover the edges of the backing with wood glue. If the edges are not sealed dust and damp may attack and spoil the picture. The final part of the job consists of attaching rings to the sides of the frame for the picture wire. The distance between the top of the frame and the rings may vary according to the shape of the framed picture. It is only necessary for the top member of the frame to clear the wall at the back of the picture by about $\frac{1}{2}$ in. to $\frac{3}{4}$ in. The rings are swivelled in the eyes of screws (*Fig. 237*); the screw-holes should be started with a bradawl, and

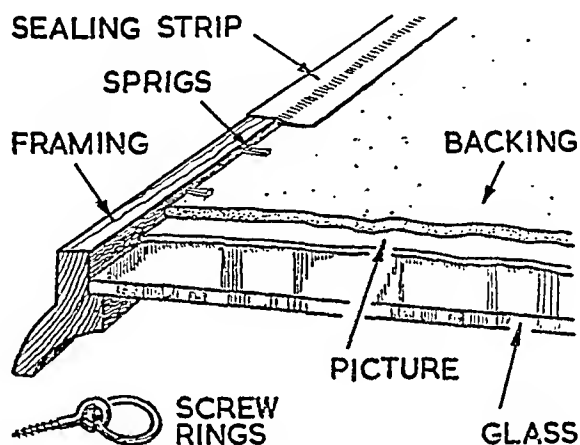


Fig. 237.

if the screws are brass, an iron screw of the same gauge and thread length should be driven in before screwing home the shanks of the softer metal. Pictures are best hung by picture wire—not cord, which deteriorates with the passage of time.

Passe-partout Picture Framing: This method of framing pictures with thin strips of strong adhesive tape is suitable for small pictures and photographs. Passe-partout is obtainable in a good range of colours and in wood-grain patterns. Other materials required are some hardboard, some glass—15 oz. for small pictures, 18 oz. for larger pictures—and, of course, the picture to be framed. The pictures are hung from ring-clips inserted through the backing material.

The glass, picture and backing of stiff card should all be the same size: the picture may be mounted or unmounted. If the picture is mounted the margin at the top of the mount should be slightly wider than the margins at the sides, and the lower margin about twice the width of the top margin.

Start by fixing the ring-clip hangers through the backing, as illustrated in

Fig. 238. Small cuts are made in the backing with a sharp penknife, and the clip part of the hanger inserted through the slots. The wings of the clip are spread open on the *inside* of the backing, then covered with small squares of passe-partout to prevent the sharp ends of the prongs scratching the back of the picture. The inside of the glass should be cleaned and the three parts of the picture clipped together with 'bulldog' paper clips, as illustrated in *Fig. 238*.

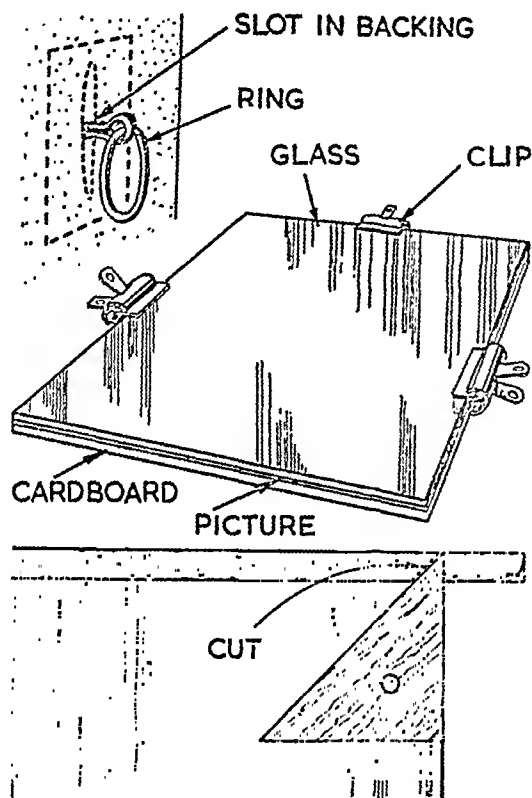


Fig. 238.

The passe-partout, which should be of a colour to tone with the picture, should be cut into lengths from the roll; four lengths are required—one for each side of the picture—and each length should be about $\frac{1}{2}$ in. longer than the side of the picture to which it is to be secured. The two short ends of the picture should be framed first. Passe-partout is scored on the gummed side, so that it is easy to fold over the edges of the picture. The two end strips should be folded along the scored lines, flattened out and dampened with clean water. This may be done with a sponge; if much of the work is to be done a special dampener is obtainable.

The damping must be done thoroughly, using plenty of water, and after dampening the strips are laid aside to soak for a minute or two until the gum becomes tacky. The strips are then folded over the edges of the glass/picture/backing sandwich, and smoothed neatly in place with a damp cloth or sponge. Adherence is very quick, and as soon as the strips have been smoothed satisfactorily the ends may be trimmed. This is done with a small set-square and *very sharp* handicraft knife, as illustrated in *Fig. 238*. The set-square is held against the edge of the glass, as illustrated, and the slanting edge of the square used to guide the knife to make a neat mitred cut at the corner. The backs of the strips are trimmed square with the side-edges of the backing. The side strips of passe-partout are fixed and trimmed in the same way as the first two strips positioned. Finish by cleaning the face of the glass to remove any gum smears at the edges of the framing.

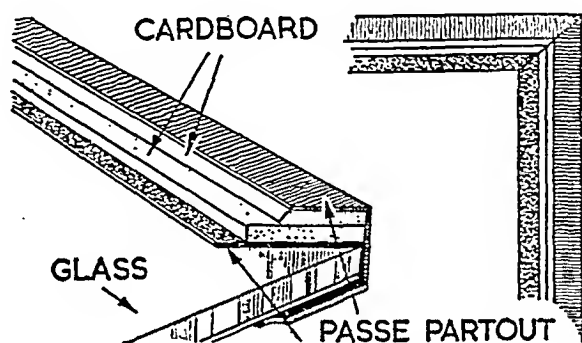


Fig. 239.

The method of edging pictures with passe-partout, explained above, is known as 'flat' framing. There is another, and perhaps better method of framing, which is termed 'deep' framing. In this method the frame is built up from the glass with narrow strips of cardboard which are covered with passe-partout of different colours, or with one of the wood-grain patterns. This method of deep framing is illustrated in *Fig. 239*, which shows complete construction details.

Uses for Old Pictures: Old-fashioned picture-frames may be transformed to new uses in many different ways. Small frames of suitable shape may be fitted with handles at the short ends, as illustrated in *Fig. 240*, to make attractive tea-trays. Medium-sized pictures may be fitted with feet (*Fig. 240*) and used as fire-screens. Another way of making use of old frames, particularly those with modelled gesso facings, consists of removing the glass, picture and backing, and replacing them with mirror glass.

Mirrors: Some very attractive mirrors may be made from old picture-frames, fitted with mirror glass, and frameless mirrors are not difficult for the handyman to make. Mirror glass is obtainable in several different thicknesses, and can be purchased by the handyman from local glass merchants by the square foot, at

quite reasonable prices. For most purposes quarter-inch plate should be obtained. Anything less than $\frac{1}{4}$ -in. thickness is too fragile for making mirrors, and there may be some distortion of the reflection when thinner glass is used. Mirror glass is backed with a coating of red-oxide, and great care should be taken to ensure that this protective coating is not scratched, as it prevents the silvering from becoming damp-spotted. Mirror glass may be framed with picture-frame mould-

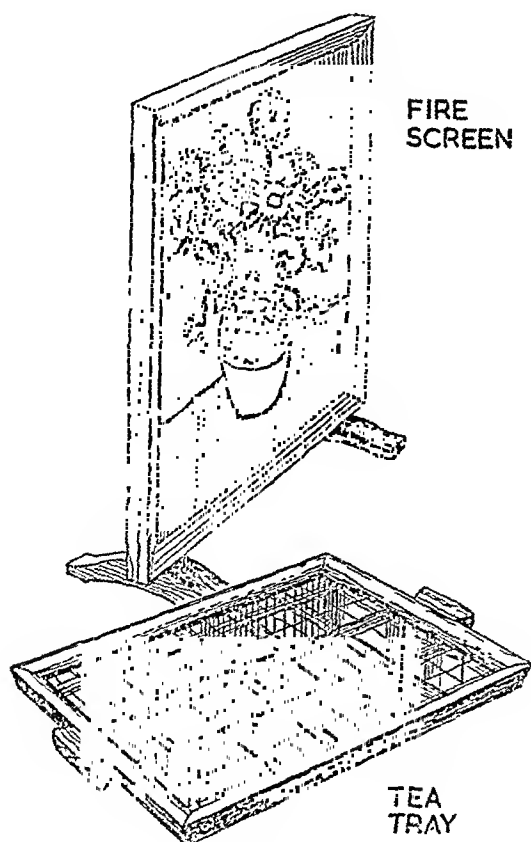


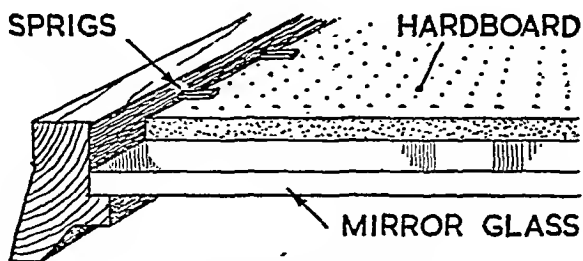
Fig. 240.

ings of the larger sizes, provided the rebate is deep enough to take the thick glass and a backing. If not the rebate may be deepened with a rebate plane.

The glass is placed in the rebated ledge at the back of the frame; the back of the glass should be covered with a piece of stiff cardboard—a very good thing for inserting in the back of mirrors is a sheet of V.I.P., which is an abbreviation for vapour-inhalant paper. Use of this material prevents damp from attacking the back of the mirror. The covering at the back of the glass should be backed,

and this is best done with a sheet of $\frac{1}{8}$ -in. thick hardboard cut to fit snugly inside the rebates. The parts of the mirror are held in place with glazing sprigs, as previously described, and as illustrated in *Fig. 241*. The job is then completed by gluing strips of stout brown paper over the edges of the backing to seal them.

Mirror glass is heavy stuff, and the fittings used to hang them on a wall should be substantial. Large screw-ring hangers may be inserted into the sides at the back of the frame (*Fig. 241*), or mirror-plates may be used, as shown in the illustration.



FRAMING MIRROR

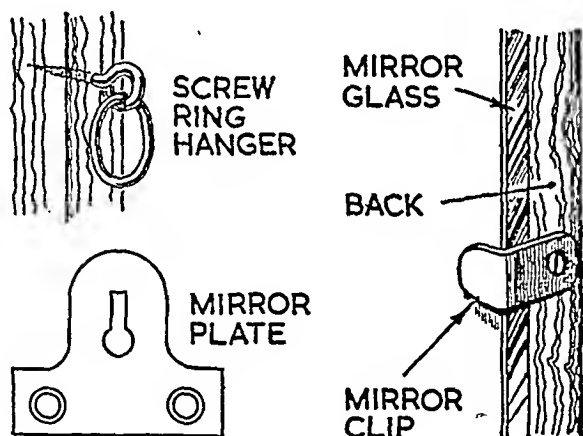


Fig. 241.

Frameless mirrors may be made to the handyman's own design. Local glass-merchants will cut mirror glass to any shape required, and will polish or bevel the edges. Frameless mirrors may be attached to walls with capped screws through holes drilled and countersunk in the glass. Frameless mirrors may also be backed with stout plywood, using ply of at least 9-mm. thickness. The face sides of the ply should be painted to protect the back of the mirror against damp. The edges may be painted, or stained and polished, and the glass is attached to the back with mirror-clips of the type illustrated in *Fig. 241*. The usual method of hanging this type of mirror is with bronzed or chrome-plated chain, secured to the backing with ring-screws.

HINTS AND IDEAS

Rust stains on porcelain—Steel wool in the kitchen—Shopping reminder—Fitting new broom heads—To oil door locks easily—Painting furniture—Loose-cover plackets—Kitchen or workshop tins—Coal dust briquettes—Dirty windows from window boxes—Dirt between floor-boards—Automatically locking windows—Curtain runners—Distemper splashes—Mildew in the home—Drawers that stick—To clean discoloured glass—Damaged fire-bricks—Soot marks on a carpet or rug—Cleaning papier mâché—Piano keys—Marks on furniture—Re-fixing knife handles—Renovating old fire-places—Care of heat-proof glass dishes—Washing lace curtains—Fur in a kettle—A greasy oven—Fireproofing fabrics—Removing stubborn screws—Cleaning a sewing machine—Cleaning and storing a lawnmower—Disposing of old razor blades—Discouraging flies from waste-bins—Cleaning gilt frames—Cleaning grease from upholstery—Toast from open fire—Increasing the wear of new shoes—Working above eye level—Dyeing fabrics at home—Removing marks from wallpaper—Storing seasonable goods—Some sewing hints—Hints for curtains—Flowers in the home—Preserving leaves for winter use—Making pot-pourri—Frozen pipes—Removing stains—A useful carpet shampoo—Rust on tools—Fire precautions—Household thermometers—Cleaning alabaster—Maintenance of clocks—Mirrors—Hanging pictures—Moving house.

Rust stains on porcelain: Mild abrasives, if used often, are apt to scratch the surface. Instead wipe with a cloth sprinkled with vinegar or lemon juice. This treatment is also good for removing tea stains from the inside of *china teapots*, but never use to clean metal pots.

Steel Tool in the kitchen: Steel wool and scouring pads soon go rusty between use making a mess of sink or soap holder, so store in a jar of water to which has been added 3 tablespoons of baking soda, and they will last twice as long.

Shopping reminder: Paint the inside of the larder, or kitchen cupboard door, black, and you have a handy blackboard for jotting down your shopping needs. The chalk rubs off easily with a damp cloth.

Fitting new broom heads: When fitting a new handle on broom, trim the handle with a knife so that it fits firmly and tightly into the hole. If the handle fits loosely pack with a strip of glasspaper rolled round head of handle. Use a long thin screw to attach head to handle of broom; this will hold firmly much longer than a nail will.

To oil door locks easily: Pour a little mineral oil into a saucer, dip the door key in the lock, then insert key into lock and turn. Repeat this process several times, until the lock action is perfectly smooth. Wipe key and keyhole to remove any surplus oil.

Painting furniture: Fill a small empty nail-varnish bottle with a little of the paint used for the piece of furniture, label and keep in a handy place. Touch up scratches and chips as they occur.

Loose-cover plackets: Press-studs sewn on to the placket of a loose cover or a cushion will keep placket more firmly in place, if tops and bottoms of the press-studs are sewn alternately on each side of the placket, rather than sewing all the tops along one side and all the bottoms along the other side.

Kitchen or workshop tins: Unlabelled tins are both dangerous and time-wasting in kitchen or workshop, yet gummed labels flake off in a matter of days. This can be prevented by first brushing the part where the label is to go with Friar's Balsam and leaving it to dry before gumming the label on.

Coal dust briquettes: These are an economy when used in with other fuel and also keep your coal bunker free from slack. Briquettes are made from slack and coal dust mixed with Portland cement (6 parts of slack and dust to 1 part of cement). Add enough water to make the mass plastic, but definitely not runny. Use an old tea-cup to mould the briquettes, fill cup with the mixture, pat down firmly and turn out on a board to dry.

Dirty windows from window boxes: Window boxes do much to make the house or flat attractive, but can be a nuisance when the rain splatters dirt from them on to the windows. This can be overcome by scattering a layer of gravel over the top of the soil.

Dirt between floor-boards: Dirt between floor-boards can be troublesome when preparing a floor for painting or polishing. Deal with this by using a rubber sink plunger: place over the crack and work as if you were clearing a sink; this will loosen the dirt.

Automatically locking windows: If you replace the usual sash lock with a cupboard door catch, the window will lock automatically every time the window is closed.

Curtain runners: When curtain railways have been up for some years, the small wheels sometimes stiffen, especially in bathrooms and kitchens where there is much steam. To clean the runners, remove from the rail and curtain, scrub with soft wire wool and place in a saucer of olive oil. Remove surplus oil by rolling runners in a warm cloth before replacing. Smear bearing surfaces of rail with a cloth dampened with olive oil before replacing runners.

Distemper splashes: To avoid making splashes when using distemper or emulsion paint, tie a length of cord across the handle of bucket. Wipe both sides of the brush on the cord each time you dip. Never overload your brush or roller, and try to develop the good habit of keeping brush bristles on the surface when turning the brush at the end of a stroke.

Mildew in the home: Mildew marks on clothing and furniture can usually be removed by cleaning or washing, provided they have not been left too long. In the case of old mildew marks, soak cotton materials in milk overnight, then wash

with a good detergent the next day. Mildew marks on white fabrics can often be removed by placing in the sun, preferably spread while still dripping wet on the grass. As soon as the fabric becomes dry wet it again. Several days of this treatment may be necessary, depending upon the amount of sun. Very obstinate stains can be removed by mixing a paste of equal quantities of soft soap, powdered starch and salt with enough lemon juice to mix it to a thick cream. Spread this mixture on the stain, then expose it to the sun, treat one side of the fabric then the other side, and rinse in several waters before washing.

Drawers that stick: One reason for drawers sticking is uneven support of the legs of the furniture. One or two legs may be on edges of mats or carpets. In this case pack thin slips of cardboard or lino under any lowered legs to level the piece of furniture.

The jamming may also be due to damp. In this case, place the piece of furniture in a warm room to dry out.

If the condition is chronic, lower the surfaces of the runners at each side under the drawer by lightly going over them with grade middle two glasspaper.

Never lubricate stubborn drawers with soap—it hardens and will cut into the wood. Use a candle to make drawers work smoothly, rubbing it on the runners underneath the sides of the drawer.

To clean discoloured glass: To clean a discoloured water bottle, decanter, flower vase or glass cruet, mix an ounce of kitchen salt with an ounce of vinegar, add warm water to the mixture, and fill the glass object with the mixture. Leave to stand overnight, shake the mixture in the bottle, pour off, then rinse with soda water. Finish by washing in warm water and detergent to make the glass sparkle.

Damaged Fire-bricks: Broken fire-bricks waste fuel. With plastic fire cement ('Purimachos') they are easy to repair. Cracks or broken edges should be scrubbed with warm water. Mix the plastic fire cement with an old kitchen knife. If you find the cement sticks to the knife, dip the knife in water first. It is not necessary to leave the bricks to dry before lighting the fire. A fire can be lit at once, but the heat should be built up gradually.

Soot marks on a carpet or rug: Soot sometimes falls down a chimney, resulting in stains on a carpet or rug in front of the fireplace. Sprinkle the soot marks with ordinary kitchen salt. Leave for at least an hour, then brush soot and salt up together with a small stiff brush and pan. If any marks remain, wipe with a cloth dipped in warm water and detergent. Rinse well.

Cleaning papier mâché: Bowls, vases or trays made of papier mâché need careful cleaning. They must never be soaked in water. Usually a wipe over with a damp cloth will be all that is necessary. If they become very soiled, give a *quick* wash in warm soapy water, dry carefully, then polish with sweet almond oil or a pure white wax polish.

Piano keys: Piano keys sometimes become discoloured over a period of years. If the discoloration is only slight, wipe each key with a soft duster dampened with

methyated spirits, wiping dry with a second cloth. If the keys are very discoloured make up a paste of lemon juice and whiting, and apply this to the keys, covering only a few keys at a time. Remove the paste after it has dried with soap and water, taking great care not to use too much water or let it run down into the piano. Dry the keys and polish with a spot of sweet oil.

Marks on furniture: White marks on polished furniture can be removed, though it may take several applications before the mark fades. Dampen a cloth with vinegar, dab the cloth in cigarette ash and rub gently but firmly over the mark. Repeat until the mark fades. If the mark has been on the furniture some time it may be stubborn; it should then be rubbed with a cloth dampened in sal volatile. Very badly marked furniture may need more drastic treatment. Apply methyated spirit with a soft cloth; be sparing with the spirit, and always rub in the direction of the grain of the wood. It is a sensible precaution to test any method on an unobtrusive part of the furniture before treating a main surface.

Re-fixing knife handles: If the handle is loose but has not actually come away from the blade, punch out the rivet holding the handle to the blade, and put the handle into very hot water, so as to melt the old resin. (If the handle is of composition the water must only be warm, or the handle will warp.) Heat a suitable adhesive in a tin, stir in some plaster-of-paris, pour the mixture into the hole in the handle, heat the tang of the blade, and push into handle, and leave to harden.

Renovating old fire-places: Metal surrounds to fire-places are often found to have faded to a dingy colour. They can be repainted, thus freshening the look of the whole room, but it is necessary to use a really good heat-proof enamel.

To prepare the surface, scour with wire wool or an abrasive cleaning powder, then wipe over with a cloth dampened with methyated spirits. Use a soft paint-brush to apply the enamel and work quickly. The enamel should take about four hours to dry.

A tiled surround can be painted with the same heat-proof enamel. Start by going over the surround with a cloth dipped in a thinly mixed filler such as 'Alabastine'. This will fill in any tiny cracks or dents, making a smooth surface. If there are any missing tiles, and it is impossible to replace them, wet the cavity thoroughly and then fill with a very thickly mixed filler. Level by scraping the filler with the back of a knife before it sets, resting the end of the knife on surrounding tiles, so that the surface is level. Leave overnight to harden.

Lightly scour the complete surface with fine wire wool, and wipe over with a cloth dampened with methyated spirit to remove grease. Paint in the usual way with heat-proof enamel, applying a second coat when the first coat is completely dry.

Care of heat-proof glass dishes: Although these glass oven dishes are very strong and quite heat-proof, a little thought will do much to prolong their life. Never put them into, or fill with, *cold* water while the glass is still hot. Never take them

out of a hot oven and stand on a cold enamel table-top, or a porcelain sink. Place a cork or rubber mat on the table before placing the ovenwear on the table.

Washing lace curtains: White lace or net curtains will iron and hang better if a little milk is added to the blue water when washing them. If it is desired to tint white lace or net, add the dye powder to soapy water, and you will find the curtains come up a lovely, soft, even shade.

Fur in a kettle: Fur in a kettle can be removed by standing the empty kettle on the stove for a minute, but be careful not to leave it long enough to burn. The deposit will then expand with the heat and crack. The scaling can then be loosened with an old knife and easily removed from the kettle. To finish, boil soda water in the kettle, and rinse thoroughly with clear water. To prevent fur forming in the kettle it is a good plan to keep a small pebble in the kettle.

A greasy oven is more easily cleaned when the stains and grease have been subjected to ammonia fumes. Half fill a clean tin with ammonia, place in an unlit oven and leave overnight. Remove tin in the morning and immediately wipe over the surfaces with a damp cloth. *On no account must the oven be lighted while the tin of ammonia is in the oven.*

Fireproofing fabrics: Curtains and soft furnishings used in rooms with open fires can be made practically non-inflammable by adding one ounce of alum to the last rinsing water when washing them. This method also applies to children's clothes, but *it should not be used for baby clothing*, as a small child may suck its clothing.

Removing stubborn screws: First scrape any paint or rust from the head. A wide-bladed screwdriver should be used. Place the blade of the screwdriver in the slot on the head of the screw. Rap the handle of the screwdriver with a light hammer. Turn the screw clockwise to loosen any paint or rust which may be under the screw-head, then turn anticlockwise to remove screw. If the screw proves very stubborn, treat as above but follow by painting the screw-head with thin oil; leave for twenty-four hours, and press a hot poker on the screw-head before removing.

Cleaning a sewing machine: A sewing machine does not require a great deal of cleaning. The chief thing is to keep it as free from dust as possible. It should never be left standing without its cover for any length of time. A soft brush should be used to keep fluff and dust from the working parts. If dust is allowed to accumulate it will interfere with the running of the machine. Never use any oil other than that sold specially for sewing machines, for heavy and unsuitable oil can do a lot of damage. A machine which is always kept in its cover when not in use will not pick up a lot of dust, and a small paint-brush dipped in paraffin can be used to pick up any fluff and take off any dust particles. After a machine has been oiled run it for a few minutes, using a piece of old cloth for stitching, so that there is no fear of excess oil spoiling new fabric.

Cleaning and storing a lawn-mower: A lawn-mower usually dies of neglect

rather than from overwork. A little care when putting the tool away for the winter months will make it last twice as long. Rust which is allowed to form on any part of the mower will do more harm than any amount of use. Store the lawn-mower in a dry place for the winter months, but before putting it away take it apart; thoroughly clean and oil each part, some of which may need repainting. The blades may have become bent through running over stones or twigs; straighten these out, and sharpen them before replacing. Make sure that every part is well greased before storing.

When the mower is in use, it should be cleaned after every use. An old paint-brush is useful for this job, and an oily rag run over all the metal parts will keep away any rust. The rotating blades of the cylinder are apt to get bent and damaged by running over stones. They should be straightened out and if much out of true should be ground by a professional grinder, though it may be possible to do the job yourself with a flat file.

Disposing of old razor blades: Used razor blades are most dangerous things to leave about. They are also most difficult to dispose of. An easy way round this problem is to place a toy money box, of the 'Post Office' type, on the bathroom shelf; used blades can be posted into it, and when full the box is easily and safely disposed of in the dust-bin. The cost of a new box is only a few coppers, while the saving of accidents, especially in a house where there are young children, is very great.

Discouraging flies from waste-bins: Flies very much dislike the smell of moth balls or powder. A small net bag of moth balls hung inside the dust-bin will help to keep them away, or some crushed moth balls placed at the base of a pedal-operated bin in the kitchen will do the same. Place the powder or balls in the base of the bin, before the lining paper is inserted.

Cleaning gilt frames: Use a clean paint-brush to brush off any loose dust. Make a 50-50 mixture of household ammonia and methylated spirit, and paint over the gilt with this. Leave for about a quarter of an hour, then brush over with clean water, standing frame on edge to dry. *This treatment is not suitable for real gold leaf frames.*

Cleaning grease from upholstery: Make a thick paste from cornflour and cleaning fluid, spread quickly over the grease, making a thick unevenly edged patch, leave the paste to dry, and then brush off with a stiff brush.

Toast from open fire: No toast tastes as good as that made in front of an open fire, but even with a long toasting-fork fingers are apt to get scorched. This can easily be prevented by sticking the handle of the fork through a paper plate or circle of thin card, to act as a shield for the hand.

Increasing the wear of new shoes: When you buy a new pair of shoes, before wearing them coat round the edges of the soles and heels with clear nail varnish. This will help to keep the original finish, keep out damp and make the shoes look new for twice as long. When cleaning shoes, polish the bottoms of the soles and

heels each time. The polish helps to prolong the life of the leather and also keeps damp out.

Working above eye level: When working on ceiling repairs or cleaning high ledges, etc., wear a pair of plastic goggles to protect the eyes from dust and specks, which can be very painful in the eyes.

Dyeing fabrics at home: There is no reason why home dyeing should be the messy and very unsatisfactory job it so often is. It *can* be successful, easy and inexpensive. Modern dyes have been improved so much that with a few simple precautions successful dyeing is not difficult. Obtain the *right* dye for the particular fabric being treated, and then follow the manufacturer's instructions *exactly*. Modern dyes are the outcome of scientific research, and results will not be good unless the directions are followed exactly. Dyes are obtainable in many shades of every colour, so that it is no longer necessary to make many trials before obtaining the right shade.

Dyes cost only a few coppers a packet but can prolong the life of curtains, covers or clothing for some time. Home dyes make it possible to change the whole colour scheme of a room, long before it is necessary to purchase new curtains or carpets.

Although it is now possible to use dye removers on fabrics before re-dyeing, the best results still seem to be obtained by dyeing light shades a darker colour without the use of dye removers. These are after all a bleach, and as such do sometimes tend to weaken the material. When choosing a colour remember that the primary colours are red, yellow and blue. If a garment of one of these colours is dyed another primary colour, the garment will come out one of the secondary colours. For instance, a yellow article dyed blue will come out green, and so on.

To prepare fabrics for dyeing, first remove all buttons, hooks, curtain rings, and trimmings, then unpick hems and pleats to ensure that the dye can penetrate the fabric evenly. Now go over the fabric, removing as far as possible all stains. Lastly the article must be washed and rinsed thoroughly. The equipment required will probably be found in most homes. A large bowl, pail or bath of enamel or stainless steel is required. Do not use copper or galvanized ware, as these tend to dull the colours of the dyes. The bath or bowl should be large enough to hold the article fully immersed under the dye, and for it to be moved round easily. The only other equipment needed is a smooth stick or a large wooden spoon. Directions for the use of various dyes differ according to the type of fabric being dyed, so follow the manufacturer's instructions carefully.

Removing marks from wallpaper: One of the easiest and most effective methods of removing small marks from wallpaper, is to rub the surface of the paper with stale bread. Work the bread lightly but firmly over the area of the marks, using circular movements. If a larger area is to be cleaned it is better to make a 'dough' by mixing 3 tablespoons of flour, $1\frac{1}{2}$ tablespoons of water and $1\frac{1}{2}$ tablespoons of turpentine substitute. The dough is then worked over the wallpaper in long,

clean, sweeping movements. When the surface of the dough becomes soiled re-knead it to obtain a fresh surface.

If the spots on the wallpaper appear to be caused by grease, try dabbing with grease solvent applied on a puff of cotton wool. The solvent should be used sparingly. Another method is to place a piece of blotting paper over the spot and apply a warm iron to the blotting paper. The iron must be hot enough to soak the grease into the blotting paper, but not hot enough to scorch the paper. Apply clean blotting paper until all the grease has been soaked up.

Small tears in wallpaper can be mended by folding the torn paper back over a sheet of clean paper, pasting the back of the wallpaper and turning it back on to the wall with the clean paper; pat it into place with a soft cloth. Often dirty patches appear around light switches and these are difficult to remove, but the area round a switch can be repapered. If pieces of the original paper are not available, then a contrasting paper can be used, and this often looks most effective. Cut a patch in the form of a neat circle or square; or, if the original paper is plain, a large motif from another paper can make a very attractive patch round the switch. If the switch fits flush into the wall, turn off the current at the main and unscrew the plate; paper over the switch, making a small hole where the paper meets the knob of the switch. Replace the plate, and turn the current on again.

If the switch stands out from the wall, tear a small hole in your patch for the knob, and paste the patch in place over the switch, gently tearing the paper back round the switch. Tear, don't cut with scissors, as this makes a hard outline.

It is wise to save any scraps of paper left over when papering walls, as these are useful for repairs and patches. Larger sheets can be used to paper the insides of cupboard doors, or to line drawers. They will also make attractive paper bins if used to cover suitable boxes.

Storing seasonable goods: It is always a problem to know where to store things which are only used occasionally, but which cost so much to buy afresh every year, such as Christmas decorations, picnic gear, holiday clothes, invalid requirements. If a small chest of drawers can be set aside for these items, with each drawer marked with the contents, everything can be found as and when needed, and the cost of replacements avoided.

Some sewing hints: When sewing buttons on, use waxed thread or rub your thread over beeswax to make them stay on longer. When sewing buttons on children's clothes, use shirring elastic instead of thread; when they tug impatiently at them the thread will stretch instead of snapping.

Cut your scissors on emery paper now and then; this will keep them beautifully sharp and smooth.

Keep a child's magnet in the workbox for picking up pins.

Plastic knitting needles soften from the heat of the hands, and after several hours' use may become bent. Place in hot water for a few seconds, then straighten and plunge into cold water.

When knitting socks make a double heel. When you come to the flap for the back of the heel, knit the right side rows, but on the wrong side rows purl one, slip one, thus forming a double heel which will wear very well. Or knit in a strand of matching thread with the wool when knitting the heel.

Hints for curtains: Faded floral materials can often be given a new lease of life by carefully washing and ironing, then going over the faded parts of the pattern with wax crayons. Afterwards place the crayoned parts over blotting paper and press again. You will be surprised how long these crayoned parts will keep their colour, usually through two or three washings.

When putting rods or wires through curtain hems, place a thimble over the end to prevent them from catching on the fabric.

If curtains have become very stained and dusty, before washing soak in cold water to which has been added a cupful of kitchen salt. If you are not sure about the fastness of colours in print materials add an ounce of Epsom salts to each gallon of water when washing.

Flowers in the home: Flowers can make a great deal of difference to a room. They can be used to bring colour into an otherwise dull scheme, or they can be used to give just the hint of a contrast to a well worked-out colour scheme. They can be used to highlight a beautiful piece of furniture, or to lighten a dark corner. They bring the room to 'life' as if by magic. But all flowers are expensive during the winter months, so it becomes necessary to get the most out of a few blooms. Beautiful effects can also be obtained by the careful placing of a bowl or jug of leaves.

When arranging flowers do not overcrowd the vase. Two or three blooms will often look far more attractive than a dozen or so crammed too tightly into a vase. Certain types of flowers have decided preference for particular types of containers. Not only do they look better but actually last longer in the right sort of vase. Wild flowers soon wilt and die in a silver or china vase, but will last and look lovely in an earthenware jug or bowl. Carnations seem to like glass or china vases best; roses are most at home in silver or china, though these happy flowers take to almost any type of vase. Poppies, tulips and chrysanthemums always seem to have an added beauty when displayed in copper or brass bowls. Most spring flowers take well to pottery vases and bowls. A penny dropped into a vase makes flowers last longer, and drooping flowers can be made to last a few days longer by adding an aspirin to the water. Many beautiful arrangements are possible with a bunch of mixed flowers, but it should be remembered that some flowers, like wallflowers, sweet peas, and lilies of the valley, just don't seem to like company.

Once flowers have been arranged, a little daily care will prolong their life considerably. Never place them in direct heat from a fire. Change the water each day and cut a tiny snip off the stem of each flower. Some flowers are best taken out of their vase at night and placed in a bath of water. Long-stemmed roses and

violets will gain strength if placed under tepid water for the night. Tulips also respond to this treatment but should first be wrapped in tissue paper.

Preserving leaves for winter use: Coloured leaves are an excellent stand-by for the winter months. They should be preserved during the autumn when the colours are at their best. There are two well-tested ways of preserving leaves. The first method is to pick the foliage and place it between sheets of paper; place the lot under a carpet, leave for about a week, by which time they will have been trodden flat; then take them out and stand in a vase in which has been placed a little glycerine; when the leaves have soaked up the glycerine they will last for about a year. The second method is to place the leaves on sheets of paper; drop a small piece of candle wax on each leaf, place another sheet of paper over the leaves and press with a warm iron; this will melt the wax and allow it to run all over the leaves.

Making pot-pourri: There are dozens of recipes for making pot-pourri. Some take many ingredients and others a great deal of time. But at some time or other most people with a garden like to try their hand. The chief ingredients are rose petals, lavender stalks and flowers, cloves, orris root and musk. Other possible additions to the fragrance are violets, balm, orange blossom, jasmine flowers, rosemary and thyme (use only very little thyme). Dry the pot-pourri in the sun; then mix well and place in bowls and jars, where it will keep fresh and sweet-smelling for a long time. It should be stirred up every few weeks.

Frozen pipes: Full information about thawing frozen pipes and rendering first aid for burst pipes is given under 'Main Services', and this information should be enough to deal with any emergencies.

However, people do forget to lag their pipes, and if a cold spell hits you and you are caught without your pipes lagged it is wise to open the trap door leading to the tank, with some form of safe heating placed under it, so that the hot air rises and circulates round the coldwater tank in the roof. Heating should also be placed in bathroom and kitchen where there is a danger of unlagged pipes freezing. One extra piece of information: the water usually freezes first at the points where the pipes bend; when you apply the hot cloth treatment, do so at the bends before you start on the straight pieces.

If you find it necessary to empty the water system when there is a burst pipe, you may find when you have made your temporary repair that there is an air lock. This is indicated by a metallic sound or tapping of the pipes, and it is advisable to get rid of it as quickly as you can. To do this, take a short length of hose and attach each end of it over the hot and cold taps together. Then turn both taps on. This should force the air out of the pipes and free the air lock. Another method of removing air locks, especially in hot pipes, is to create suction at the expansion pipe. Suction can be created by pressing firmly on the end of the expansion pipe with the palm of the hand and taking it away and replacing it again quickly. It is advisable to wear a glove when doing this job.

Remember that water pipes should never freeze if they are properly lagged. The expenditure of a little common sense in the summer or late autumn may save quite a lot of trouble when the bad weather starts.

Removing stains: There are very many things in common use in a home which if spilled on fabrics cause stains which are difficult to remove with soap and water. But most stains will disappear if treated quickly with the right method. The chief thing is to try and remove the stain while it is still fresh. The longer it is left on the fabric the harder will it be to move.

Grass stains are often found on children's clothes during the summer months, and can completely spoil white flannels if left for any length of time. Cotton fabrics can be treated with a mild household bleach; other fabrics should have the stains rubbed with glycerine, left for a few hours and then washed. In all cases dry in strong sunlight if possible.

Fruit juices are often tricky to deal with, and the treatment must take into consideration the type of fabric being dealt with. Soak either in ammonia and warm water and then wash in the usual way, or soak in glycerine before washing. For very dark stains such as blackberry, raspberry or blackcurrant, rub lemon juice over the stain. As with grass stains, sunlight is better than artificial heat for drying the article after washing.

Egg stains are usually quite easy to remove, and from all but the most delicate fabrics can be removed by soaking in cold water and washing in the usual way.

Coffee stains can be troublesome if left for any length of time before treating, but if quickly placed in a mixture of ammonia and warm water to soak, then washed again in warm soapy water, they should come out without any difficulty.

Chocolate and cocoa stains are usually slightly greasy, but if they are soaked in cold water at once the grease will set on the surface of the fabric and not soak into it. Afterwards wash in warm water to which has been added borax, rubbing the patch gently while washing.

Blood stains are very difficult to remove. But if not too bad and treated quickly they will come out from most fabrics. Soak the material in salt and water, or if this fails and the fabric is of a type that will stand up to it, soak in paraffin. Then wash thoroughly.

Wine stains can be removed with household bleach if the material is suitable for this treatment. Or if the fabric is of a type which can stand boiling water, pour boiling water through the stain, then wash the article afterwards.

Tea stains. As these usually occur on household linen they can be removed by soaking in a mild bleach, then boiling. Otherwise cover while still wet with borax, then wash thoroughly.

Grease spots will usually give way if treated carefully. Place clean blotting paper under and over the spot and iron with a warm iron, changing the blotting paper until no more grease can be extracted. Then cover the spot with whiting which has been mixed to a stiff paste. Leave to dry and brush off. Or after removing

the surface grease with blotting paper and iron, dab the spot with a cleaning fluid.

Ink stains. There are of course various types of ink. The waterproof ones cannot as a rule be removed, but the ordinary blue-black type will respond well. The treatment depends to some extent on the material. First blot up as much of the ink as possible, taking care not to press it into the fabric. Then cover the remainder with salt or, if the stain is on suitable fabric, with milk. Wash as soon as the ink has been absorbed. Ink on carpets can usually be removed successfully if dealt with as soon as the ink is spilt. First blot up as much ink as possible, then rub the stain with clean cloths dipped in salt; continue until all the ink is removed, then wash over the patch with a detergent and warm water.

Marking ink is more difficult to remove, but it may yield if treated carefully, providing the fabric is suitable. First try soaking in a household bleach, then when the stain has faded a little place it in water to which ammonia has been added; leave until the stain disappears, then wash in several lots of clear water.

Red ink will usually come out if soaked in borax and water for some hours before washing in the usual way. All ink stains can be treated with a paste of salt and milk if the fabric is unsuitable for washing; the paste should be spread very thickly on the stain, left to dry and then brushed off. Several applications may be needed.

Rust stains can be removed from whites fairly easily, but are difficult to remove from coloured materials. For whites the best method is to soak the stain in salted milk, and then wash in warm water and detergent. If the stains are large, then dip the affected parts in clear water, drape over a basin, paint the stain with oxalic acid (applied with a feather), and then rinse in cold water immediately before washing in the usual way. Care must be taken when using oxalic acid. Marks on coloured materials may be removed by covering the stain with salt and moistening with lemon juice; leave to dry, then rinse in cold water to which has been added a little ammonia.

A useful carpet shampoo: No matter how well kept, there are times when a carpet requires freshening up. This is quite easily done at home with a home-made shampoo. You will require the following ingredients:

- 2 oz. white soap
- 1 oz. methylated spirits
- 1 tablespoon household ammonia
- A small piece of soda

Shred the soap, add to 1 pint of boiling water, stir until the soap is completely dissolved, then add the other ingredients. Bottle the mixture, and before use shake the bottle well. If the weather is suitable spread the carpet out of doors, otherwise remove as much furniture as possible and open the windows. Then

apply the shampoo with a soft scrubbing brush, working in circular movements all over the carpet. Sponge off with clear warm water and leave to dry.

Rust on tools: If tools are not always stored perfectly clean in a dry place there is fear of their rusting. To prevent this, if tools are to be stored for any length of time, make up a mixture of 1 oz. of crushed rosin and 2 oz. of tallow. Place in the top of a double saucepan, and stir thoroughly. Apply to the tools while the mixture is still warm, and they will be safe from rust even if stored for months or years. An alternative is to make up a mixture of beeswax and turpentine. The beeswax should be shredded into the turpentine, which can then be stood over a container of hot water (it must never be placed near an open flame); when the mixture has become a thin paste, paint it over the tools with a paint-brush. When the tools are in frequent use this method of coating them is not practical, but a piece of unslaked lime kept in cupboard or tool box will absorb any moisture which seeps in.

Fire precautions: The first precaution is, of course, to take out a Fire Insurance Policy with one of the Insurance Companies. This costs very little in premiums, and can save a great deal of hardship and worry. Chemical fire extinguishers are not very expensive to install, and one kept on an upstairs landing and another in garage or shed can be the means of saving lives and property. Before retiring for the night, or before leaving the house during the day, make certain that all fires are either out or well guarded. Move furniture out of direct line with the fire and if fire is liable to spit at all, roll back rugs or carpet. Modern all-night grates are fitted with adequate guards but the old-fashioned type of grate is not suitable for leaving a fire in over-night.

Oil lamps and stoves should never be left unattended although many safety measures are incorporated in the modern ones. Nevertheless there is an element of uncertainty about them if left to their own devices; they can become overheated; or begin to smoke, or be knocked over by an animal or by a sudden shaking of the house. When oil heaters are used in a room where there is an invalid, child or elderly person, care should be taken to place it so that it is out of the draught from window or door, and so that the door can be opened to its widest extent without knocking the heater. The heater should be in such a position that, should an accident occur, access to door and window will not immediately be barred by the flames. Oil heaters and lamps are perfectly safe when used by a responsible person, and when care is taken to keep them in good and efficient working order, but don't leave them out of sight for very long.

In the older types of houses it may be found that some of the fenders do not close enough. In this case the floor-board may be left exposed and this can be dangerous if falling coals from the fire start to burn unnoticed. Of course the thing is to fit a modern tile or brick surround and kerb, but if this isn't available a strip of zinc should be tacked down in front or at sides of the hearth and exposed boards.

If periodical inspections have been undertaken as recommended in the first chapter, there will be no fear of fire from faulty electrical fittings, but it is as well to watch all electrical appliances for loose or fraying flex, or badly fitting plugs. Users of these appliances should make it a rule to take out the plug after switching off; it is possible to be mistaken over switching off, but if the plug is always withdrawn there is no danger of accidents (for example, an electric iron burning through a table and setting fire to the house).

If fire should occur, take no chances. Even the slightest draught can cause it to sweep through the house. Get all children and animals safely outside, then phone or send for the fire brigade, next close doors and windows throughout the house if possible, to keep draughts to a minimum. If the fire is only small it may be possible to put it out with water; if not, close up the room and use the water to keep *the outside of the door into the room* wet until the brigade arrives; this will help to stop it from spreading to other rooms.

Household thermometers: Most homes have, or should have, two thermometers: one to measure the heat of the atmosphere or to test the heat of liquids, and the other for measuring the heat of the body in time of illness. The first type is usually mounted on a wooden or metal support, while the second is a glass tube, in a metal or plastic case.

A thermometer measures heat on a scale of degrees. The two scales commonly used are Centigrade and Fahrenheit. On a thermometer marked in Fahrenheit degrees, boiling point is shown at 212° and freezing at 32° , while the Centigrade thermometer gives boiling point at 100° and freezing point at 0° .

A thermometer is useful for testing the bath water for babies, old people or invalids. Most modern ovens have one built in for giving cooking temperatures, but metal-cased thermometers can be bought for use with an older type of stove. In any case a thermometer is useful in the kitchen for making preserves or sweets.

A thermometer hung in a room or hall is useful in helping to keep the room atmosphere at an even temperature, which is healthier than one which rises and falls.

In time of illness a clinical thermometer is used. On most of these the scale reads from 95° to 110° and the normal body temperature is marked in red. After using the thermometer the mercury should be shaken down and the thermometer dipped in antiseptic solution.

Cleaning alabaster: Alabaster has become very popular for ornamental articles in the home. Such things as clocks, statuettes and lamp-stands are all to be found in this attractive material. It is very easy to keep clean. Simply wash with warm soapy water, dry well, and polish with a soft cloth. If any stains appear on the surface they can be removed by rubbing with a soft flannel dipped in turpentine and powdered pumice. Finish by rinsing in water to which has been added a little borax.

Maintenance of clocks: Actual repairs to and cleaning of clocks and watches are

best left to an expert, but the handyman can do much towards keeping them in good repair. Both clocks and watches benefit if wound at the same time every day; irregular winding tends to make them gain or lose over a period of time. Dust is the chief enemy and should be guarded against as much as possible. A small dust sheet placed over a clock while the room is being swept is a wise move, and will save expensive bills for cleaning. While it is not wise to touch the movements of a clock or watch, a very small amount of light oil can be applied to the moving parts on the tip of a feather now and then, but on no account must this oiling be over-done. Pocket and wrist watches are adjusted to accept movement, but standing clocks should be moved as little as possible. Electric clocks should not require any attention once they have been set and started. Any cut in the electrical supply may make them lose, and the hands will then need to be reset. After being in use for several years they may become rather noisy and this means the bearings require greasing.

Mirrors: Nothing does more to lighten a dark corner or passage than a mirror placed in a position where it will catch and reflect any light there may be. Mirrors also give an effect of space to a room. But the mirrors must be kept spotlessly clean and sparkling. There are many ways of cleaning a mirror. It can be washed over with a leather dampened with warm water, then polished with a linen cloth or piece of scrim. Another good method is to rub the mirror glass with damp newspaper and then polish with a pad of crumpled dry newspaper. There are several branded glass cleaners on the market, which can be used to give a high sparkle to the glass. Methylated spirit rubbed on with a soft cloth gives a lovely shine with the minimum of work. Yet another good idea is to sew a square of whiting into a flannel and use this damp to rub over the mirror and then polish in the usual way. Any of these methods is also good for cleaning the glass in picture-frames, or for shining windows.

Hanging pictures: Pictures should be hung at a suitable distance from the ceiling or floor, and so that the light falls softly on them. The furniture should also be taken into account. Too many pictures on a wall behind a large piece of furniture will tend to make the room look unbalanced.

Where there is a picture rail all but the smallest pictures can be hung from it, using a strong cord, or a chain for very heavy pictures. Where there is no rail a special picture hook should be used. This hook has a long thin pin which is driven into the wall at an angle controlled by the hook; the cord or wire should be stretched tightly between two hooks on the back of the picture-frame. When hung by this method the cord or wire of the picture does not show. But as this marks the wall, the pictures cannot be moved around.

The glass of the picture can be cleaned as described for mirrors, while wooden frames should, from time to time, be given a rub with a furniture polish. Gilt frames can be cleaned by rubbing with a cloth dampened with turpentine.

When considering the placing of pictures in a room, don't hang one over every

large piece of furniture round the room, for instance in a room with twin beds instead of hanging a picture over each bed, place a bedside table or small cupboard between the beds and hang a group of small pictures in the centre over the table. Hang a set of small pictures round a doorway, making a frame for the door, or in a straight line down the space between two windows; this looks both pretty and unusual.

Moving house: As soon as a definite date can be fixed for the move, write to several removal firms and ask for estimates. The cost of a removal can vary considerably, but the cheapest estimate is not always the most economical one. The better firms use vans especially constructed for furniture removals, employ skilled packers and provide cases and packing materials. They also pay compensation for breakages; that is, providing their men have done the final packing.

Having fixed up the actual removal, repair and clean furniture as necessary so that it goes into the new house ready for use. Carpets and rugs, loose covers, etc., should all be cleaned and packed ready. Linoleum which is to be taken up and relaid should be washed over and, when quite dry, rolled. Wherever possible have the curtains made ready to put up at the new house, or, if curtains in use are to be remade, at least wash them ready for the move, even if the actual remaking cannot be done until the last moment. Well before the removal day go through all cupboards and chests, turning out rubbish and packing things which are to go to the new house. All boxes or cases should be labelled with the contents so that things can be found again quickly.

If possible see that the new house is cleaned right through and the floors and cupboards dry the day before you move in. If possible line cupboards and take a kettle and the necessities for the first meal over to the new house the day before. If distance makes this impossible, pack these things in an easily opened case and take it with you. If the carpets and other floor coverings are put in the van last, they can be laid before the furniture is moved in. Arrange beforehand for all services to be turned on in the new house, and off in the old house, on the given date.

HANDYMAN'S WORKBENCH AND BASIC TOOL OUTFIT

Value of inspection and methodical repair programme—how to make the most of available workshop space—basic equipment and tools.

HANDYMAN'S EQUIPMENT. *Table-top Workbench: Description and purpose—size variations—suitable timber—difference between 'prepared' and 'sawn' timber—nominal sizes—method of construction and assembly—correct method of fastening a board—cupboard shelf for racking jars—storage of tools—hinging the bench-flap—fitting a bench vice—how to rig up a wedge-vice—catch and handle—finishing. A Bench for the Workshop: Description and construction—dimensions of the parts—variations of sizes—leg joints—use of drawer-dowels—bench-top, back and front—a batten shelf—fitting the workbench—front-pegs—types of vices—adjustable bench-stop. Making a Sawing Horse: Dimensions and construction—assembly. Making a Bench-hook: Construction and purpose. Making a Mitre Block: Use and construction—cutting angles.*

HANDYMAN'S BASIC TOOL OUTFIT. *Initial requirements—quality of tools—list of basic tools—descriptions of tools required—saws—hammers—mallet—pincers—pliers—wrench—plane scraper—screwdrivers—chisels—brace, bits and drills—rule, try-square and marking gauge—rasp—bradawl—cramps—miscellaneous tools and equipment—handyman kits and outfits—drill outfits. Care of Tools: Protecting cutting edges—storage of tools—cleaning and sharpening—how to use an oilstone—setting saws. Workshop Stores: Types of nails, description, sizes and finishes—how to drive nails—types of screws, descriptions, gauges and finishes—how to drive a screw—table of housing holes—preserving screws—use of soft screws in hard wood.*

To maintain a house in good order requires a certain amount of equipment and tools; the exact amount depends on the availability of space and the capacity of the handyman to deal with the wide variety of jobs that keep a house in good repair. If you own your own house, regular inspection and repair are essential to keep up the value of the property, and perhaps to increase its value as an investment. If you live in a rented house it is necessary to carry out simple repairs and maintenance to make and keep the house comfortable, and to allow it to be run on an economical basis—a draughty room may waste pounds of precious fuel and cause chills and colds. In addition to jobs about the house, the handyman can make and repair cupboards, toys, bookcases, chairs, furniture and other personal possessions and carry out a host of small jobs.

The type of home-handyman workshop equipment can vary from specially built benches, cupboards, shelves and racks set up in a garden shed, garage, loft, attic or cellar, to the simplicity of the top of a kitchen table—it depends a lot on individual circumstances and the availability of space. If you have to work in a living-room there is no reason why the standard of work should be of poorer quality

HANDYMAN'S EQUIPMENT

than work carried out in a perfectly equipped workshop, although there may be some restriction on the size of the job you can tackle. In most cases it is possible to start a handyman's workshop in a very small way and add extra tools and equipment as space and money become available. The tools and equipment described first in this section are the basic pieces that enable the handyman to carry out a wide variety of jobs; additional tools and equipment are described later in this section, and special tools for different branches of handiwork are described in the sections dealing with their use.

HANDYMAN'S EQUIPMENT

The first necessity is a bench and storage space in which to house tools; these can be combined in a very simple way to make a folding bench-top that can be placed and used on a kitchen table. When not in use it can be folded into the form of a compact case that requires very little storage space.

Table-top Workbench: The bench-top-cum-tool-cupboard is illustrated in *Fig. 3*. The drawing shows the general construction and the appearance of the bench in

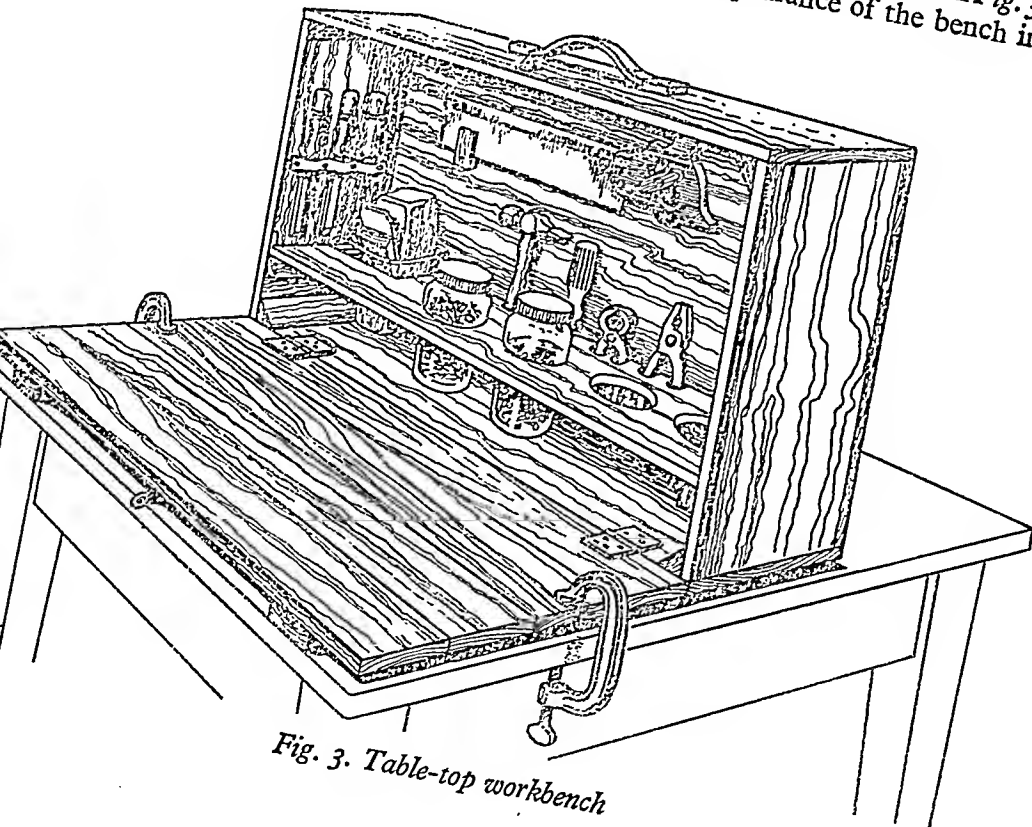


Fig. 3. Table-top workbench

use when the flap forming the front of the portable case is folded down. The bench-top is held firm to the table on which it is placed with two 'G' cramps placed one each side at the back of the flat working surface. The bench should be made to fit the table on which it will be used and it can overhang at the front and side edges by about 1 in. at each edge. If the table-top has a surfaced finish this may be protected by a piece of thick carpet felt placed over the table-top before the bench is clamped in position.

Dimensions are not given in the illustration (*Fig. 3*) as these will vary according to individual requirements. The bench cupboard may be made of a size to accommodate an existing kit of tools or to house the basic handyman tools described later in this section. The following specifications are given as a general guide.

Pine is a suitable timber for all construction; pine is a softwood that is easily worked and is light in weight; it is the timber in most general use in house-building, it is inexpensive and is easy to obtain in many different sizes. A suitable size for the main parts of the workbench would be 6 in. by 1 in. 'prepared'. The term 'prepared' when related to timber means that the rough-sawn wood, as received from the saw-mill, has been passed through a planing machine to smooth it; the purchase of 'prepared' timber saves the handyman a great deal of laborious work in planing, and there is very little difference in the cost. Although the size given is 6 in. by 1 in., meaning that the plank measures 6 in. wide and 1 in. thick (the length of the plank or number of planks being according to requirements) the preparation of the wood by machine-planing reduces the thickness and width by about $\frac{1}{16}$ in. on each face. So that the 'prepared' 6 in. by 1 in. would measure approximately $5\frac{7}{8}$ in. by $\frac{7}{8}$ in., subject to any slight variations of the setting of the planing-machine cutting blades. This difference in size between 'sawn' and 'prepared' is general to all timbers throughout the trade. Knots are unavoidable in pine, but the pieces selected should be as free from knots as possible.

The width of a single plank of 6 in. by 1 in. prepared pine should be sufficient for the sides of the box-like cupboard of the workbench. Construction details are illustrated in *Fig. 4* which shows how the top, sides, shelf and back are placed together. The joined edges are glued and nailed; the shelf is glued and nailed to a 2 in. by 1 in. prepared batten of pine which is secured inside the sides of the cupboard with screws. The corners of the sides and top are strengthened with triangular pieces of wood which are cut by sawing diagonally through pieces of 2-in. by 2-in. pine. The planks enclosing the back of the cupboard may be glued and nailed or screwed to the meeting edges of the sides; the edges of the back lap the sides as shown in *Fig. 4*. If nails are used they should be slanted as shown in *Fig. 5* to provide a stronger grip; use 2 in. long oval nails and start the nail holes with a bradawl. Also shown in *Fig. 5* is the correct way to place a board when nailing or screwing it; *Fig. 5(a)* shows the nails slanted with the board placed heart side inwards—this counteracts the natural tendency of the wood to curl, which it will if the heart side is placed outwards as shown in *Fig. 5(b)*. The heart

side of the wood may be identified by the direction of the rings viewed across the grain at the end of the board; the heart side is the one into which the ends of the rings run.

The purpose of the shelf, which may be placed in position after the outside of the cupboard has been made, is to hold jars of nails and screws, etc. Any type of glass jar with a screw-top metal lid may be used; holes are cut in the shelf (see *Fig. 6*) to accommodate the jars, and the shelf is positioned on the sides of

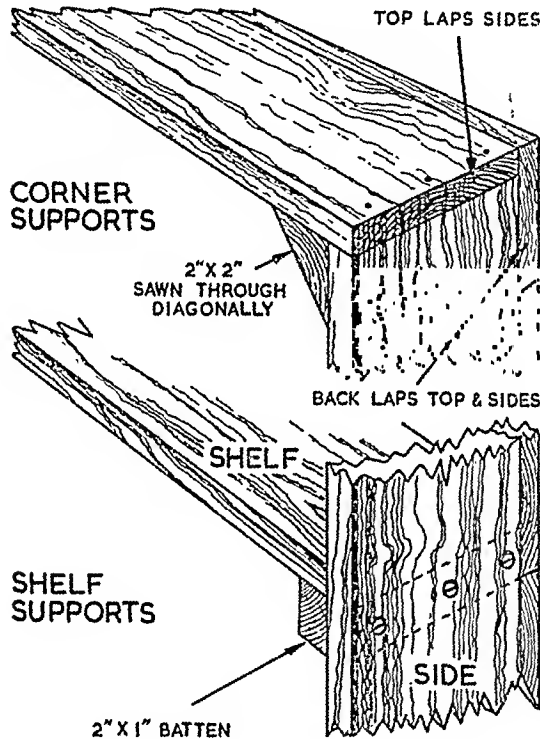


Fig. 4.

the cupboard so that the base of the jar rests on the bottom of the box. Glass jars provide an excellent method of storing nails, screws and small parts, etc., the contents are easily visible and do not go rusty. The tools may be secured inside the box with strips of leather, cut from tops of old shoes, or with spring clips which can be obtained in many different shapes and sizes. A plane is rather a difficult object to secure with clips or strips of leather, but this tool may be stored in the cupboard by cutting away part of the shelf and holding it firmly with a piece of expanding curtain spring, as shown in *Fig. 6*. Other tools may be accommodated in notches cut in the back of the shelf. The circular holes for the